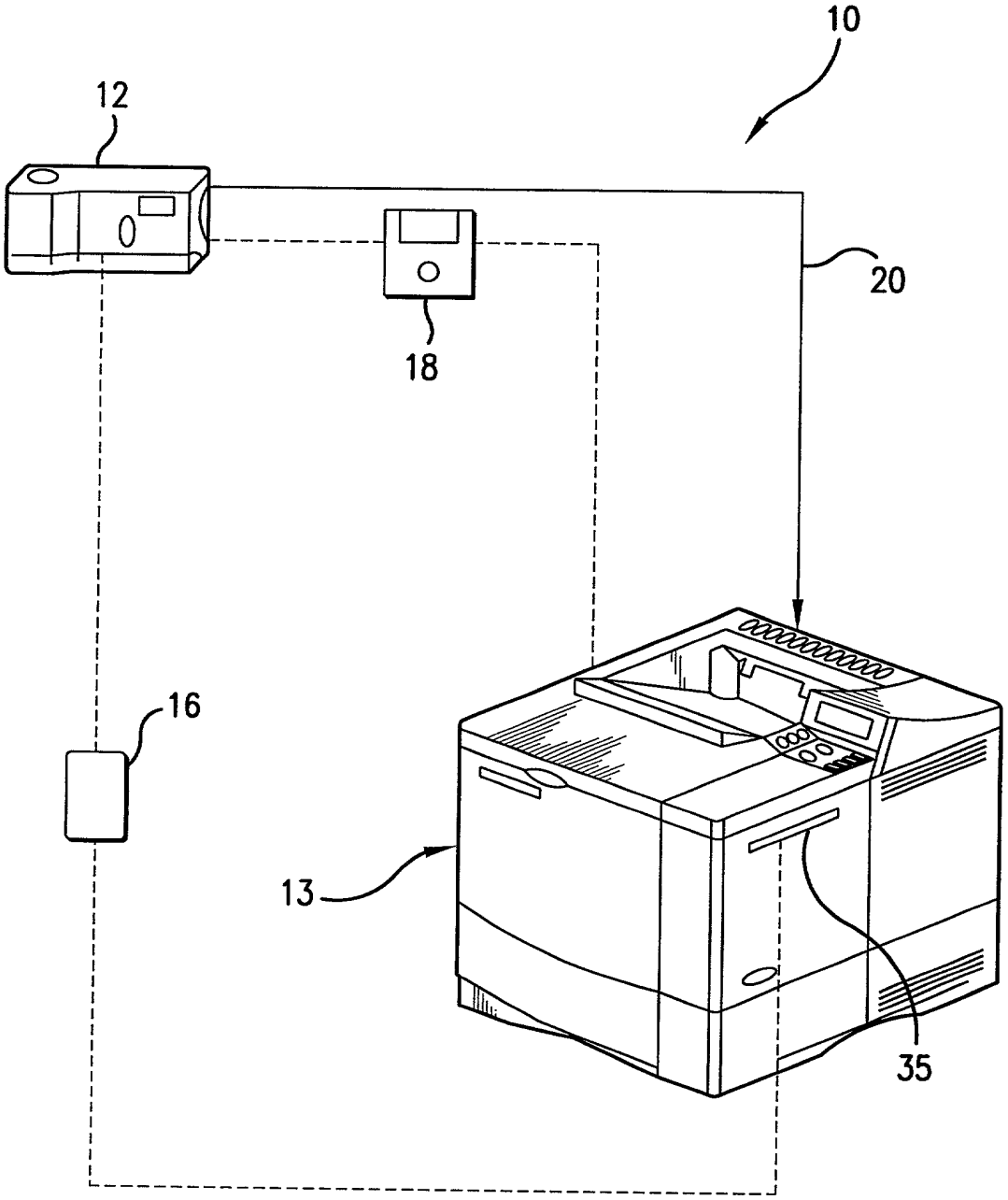

FIG.1

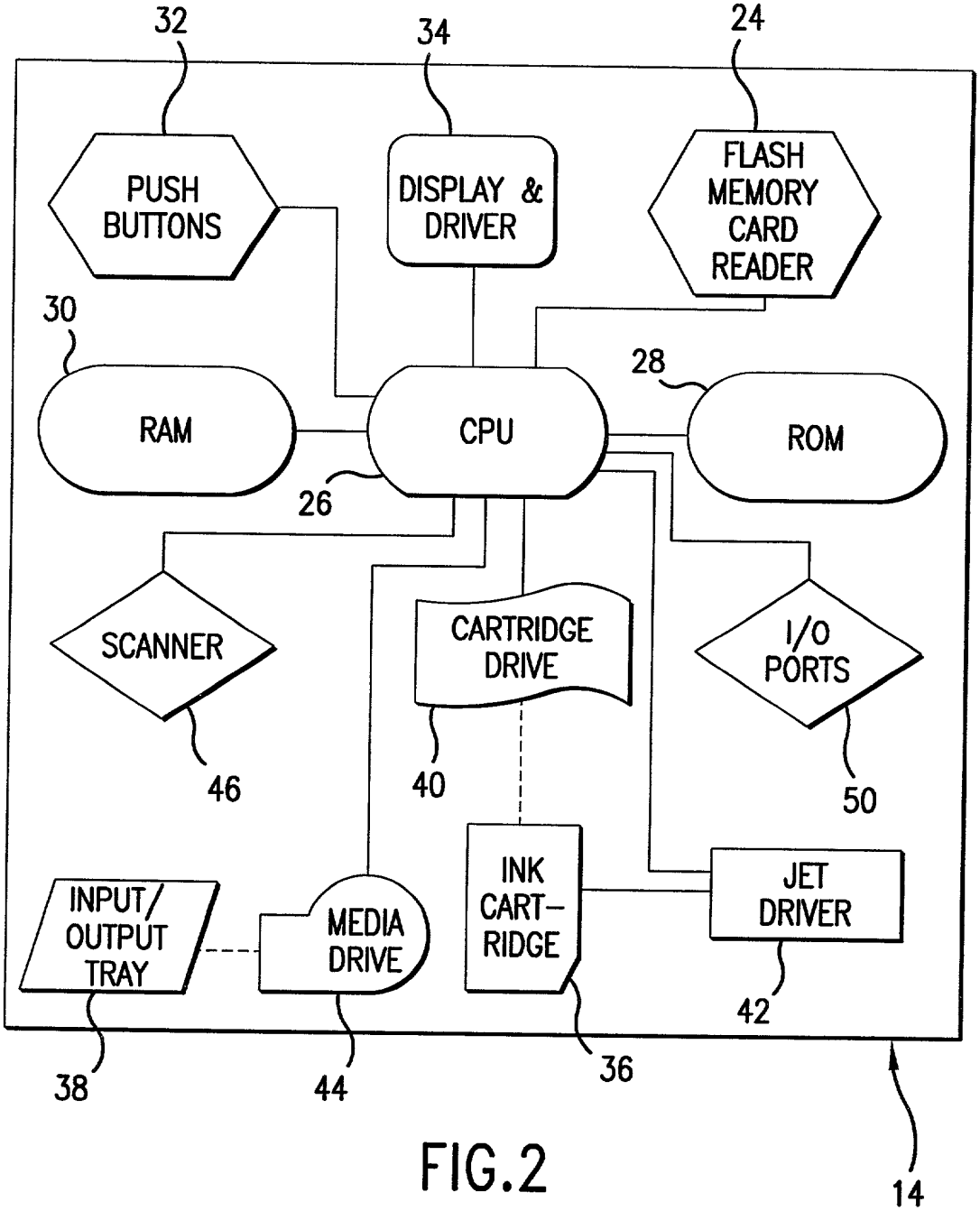
32
34
24
PUSH BUTTONS
DISPLAY & DRIVER
FLASH MEMORY CARD READER
30
28
RAM
CPU
ROM
26
SCANNER
CARTRIDGE DRIVE
I/O PORTS
46
40
50
INPUT/ OUTPUT TRAY
MEDIA DRIVE
INK CART-RIDGE
JET DRIVER
42
38
44
36
14

FIG.2

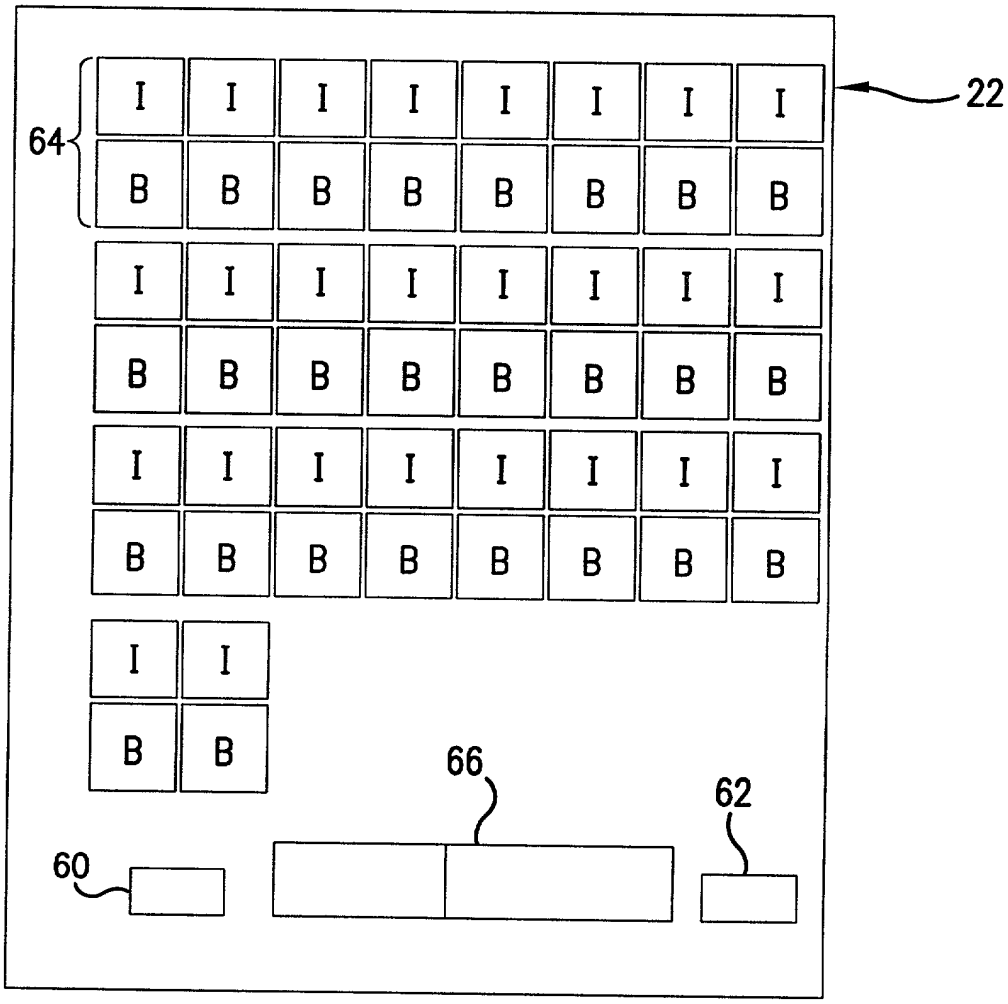
I
B
64
22
66
62
60

FIG.3A

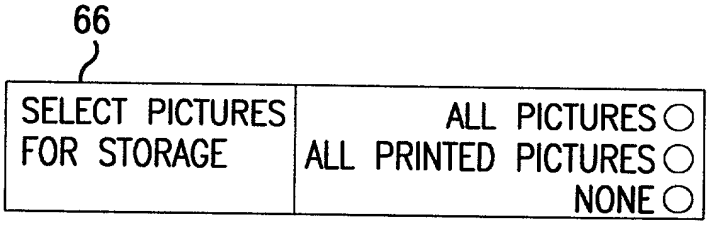
66
SELECT PICTURES FOR STORAGE
ALL PICTURES
ALL PRINTED PICTURES
NONE

FIG.3E

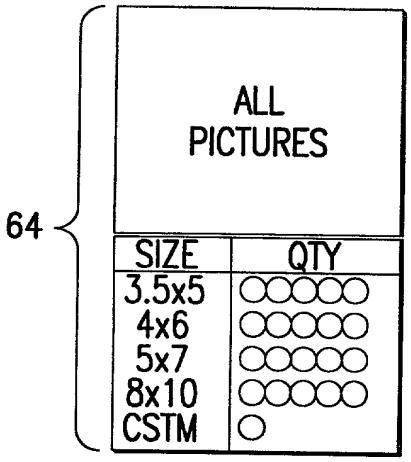

FIG.3B

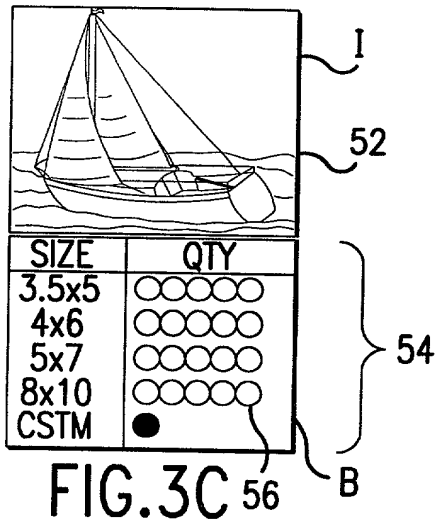

FIG.3C

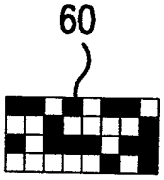

FIG.3D

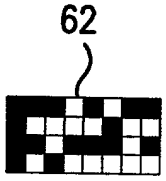

FIG.3F

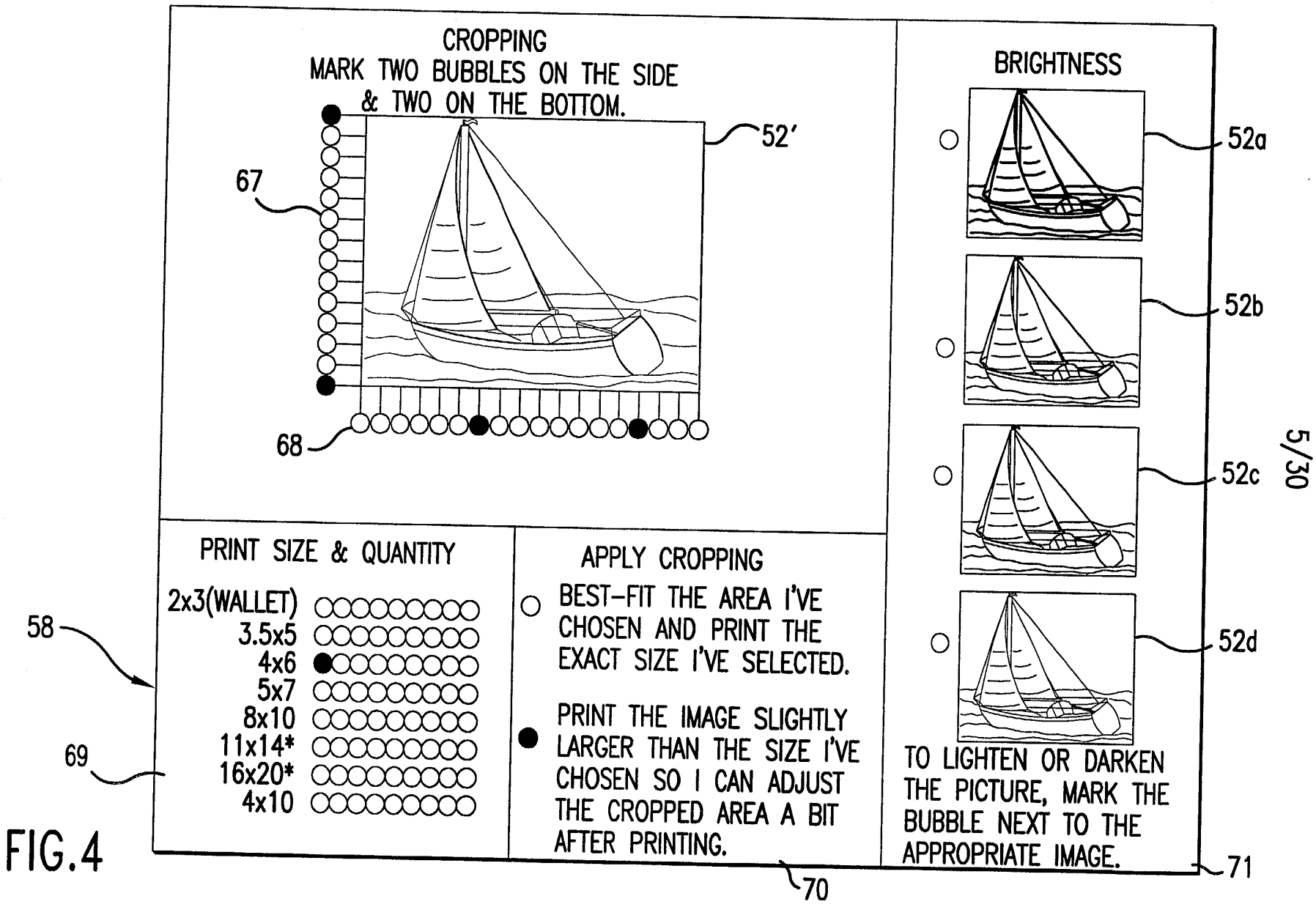
CROPPING
MARK TWO BUBBLES ON THE SIDE
& TWO ON THE BOTTOM.
52'
67
68
BRIGHTNESS
52a
52b
52c
52d
TO LIGHTEN OR DARKEN THE PICTURE, MARK THE BUBBLE NEXT TO THE APPROPRIATE IMAGE.
71
PRINT SIZE & QUANTITY
2x3(WALLET)
3.5x5
4x6
5x7
8x10
11x14*
16x20*
4x10
58
69
APPLY CROPPING
BEST-FIT THE AREA I'VE CHOSEN AND PRINT THE EXACT SIZE I'VE SELECTED.
PRINT THE IMAGE SLIGHTLY LARGER THAN THE SIZE I'VE CHOSEN SO I CAN ADJUST THE CROPPED AREA A BIT AFTER PRINTING.
70

FIG.4

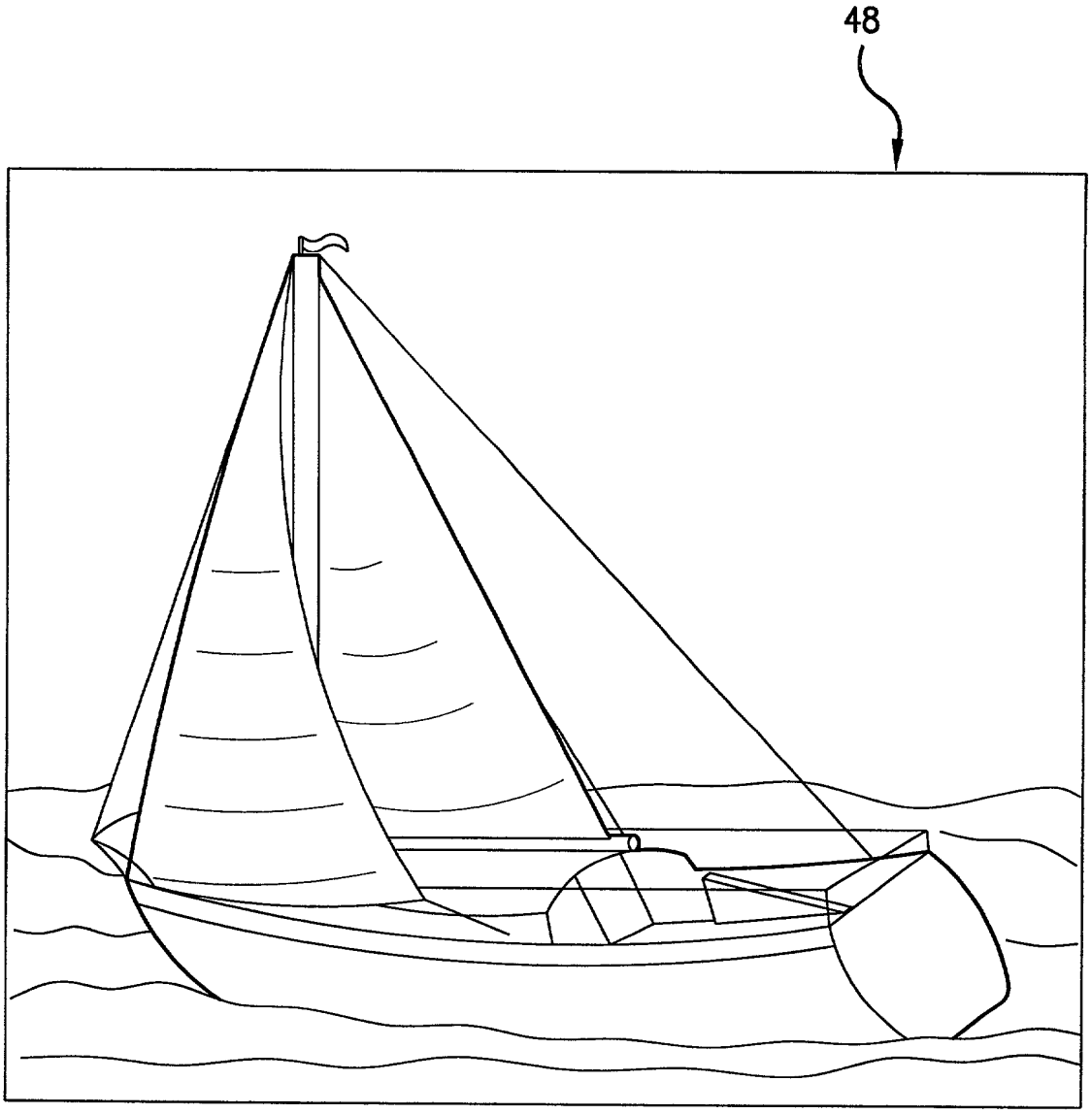

FIG.5

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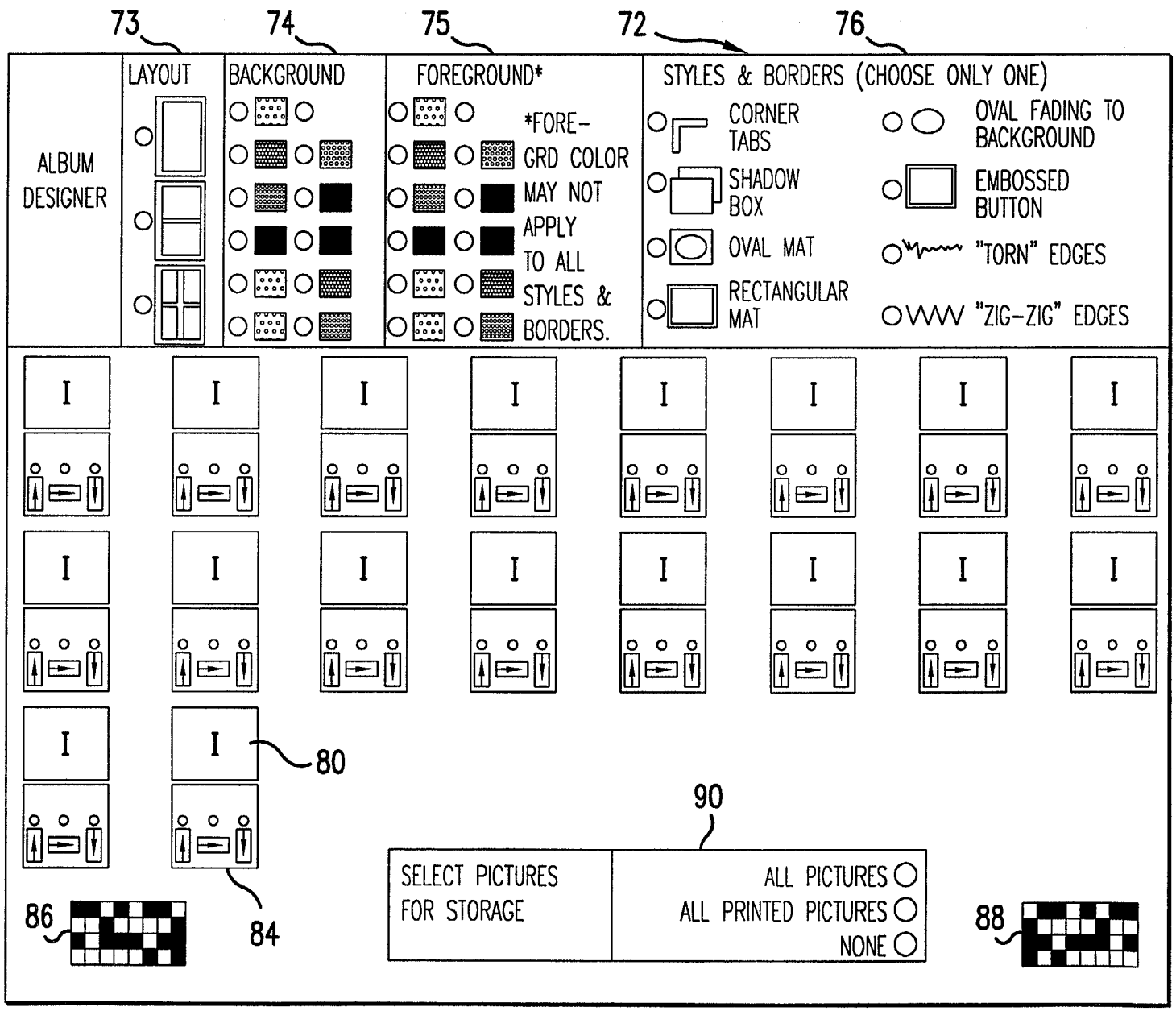

73
74
75
72
76
ALBUM DESIGNER
LAYOUT
BACKGROUND
FOREGROUND*
*FORE-GRD COLOR MAY NOT APPLY TO ALL STYLES & BORDERS.
STYLES & BORDERS (CHOOSE ONLY ONE)
CORNER TABS
SHADOW BOX
OVAL MAT
RECTANGULAR MAT
OVAL FADING TO BACKGROUND
EMBOSSED BUTTON
"TORN" EDGES
"ZIG-ZIG" EDGES
80
90
SELECT PICTURES FOR STORAGE
ALL PICTURES
ALL PRINTED PICTURES
NONE
86
84
88

FIG.6A

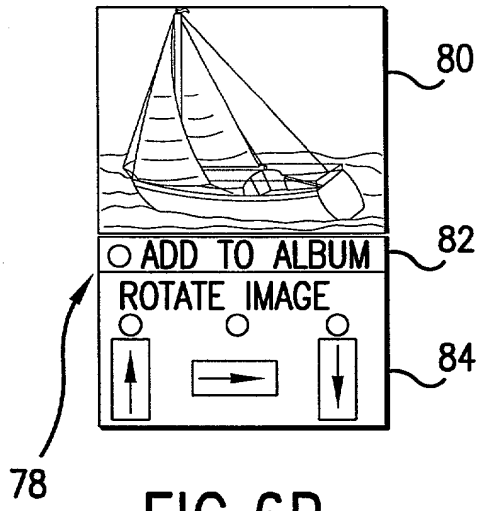

80
ADD TO ALBUM
82
ROTATE IMAGE
84
78

FIG.6B

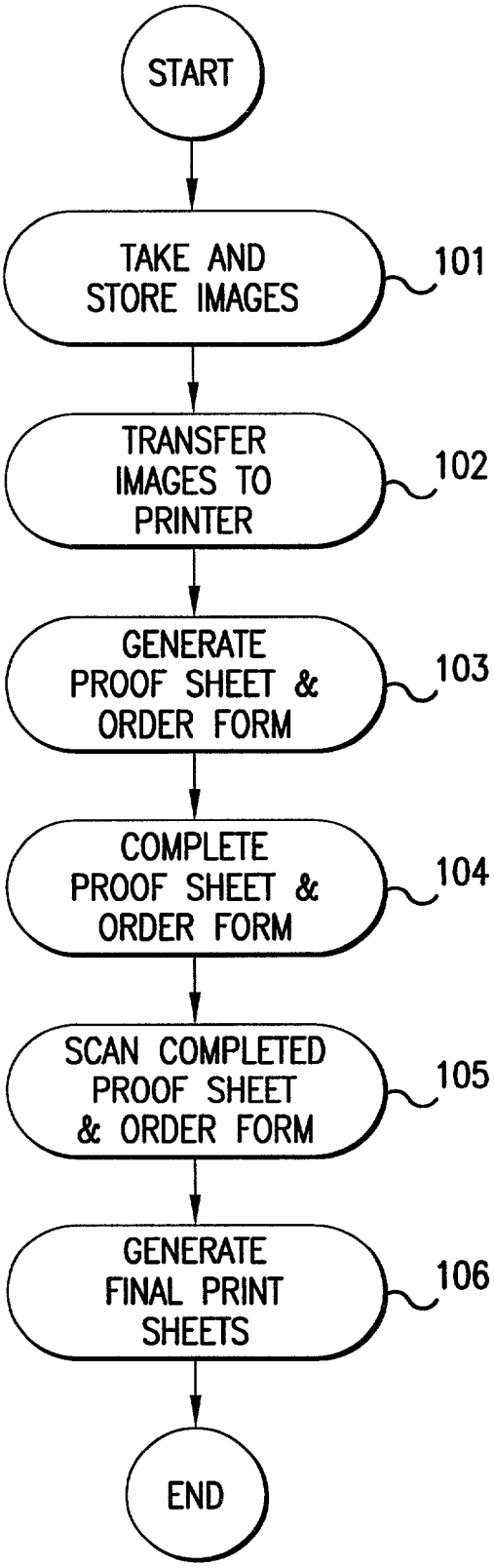

START
TAKE AND STORE IMAGES
101
TRANSFER IMAGES TO PRINTER
102
GENERATE PROOF SHEET & ORDER FORM
103
COMPLETE PROOF SHEET & ORDER FORM
104
SCAN COMPLETED PROOF SHEET & ORDER FORM
105
GENERATE FINAL PRINT SHEETS
106
END

FIG.7

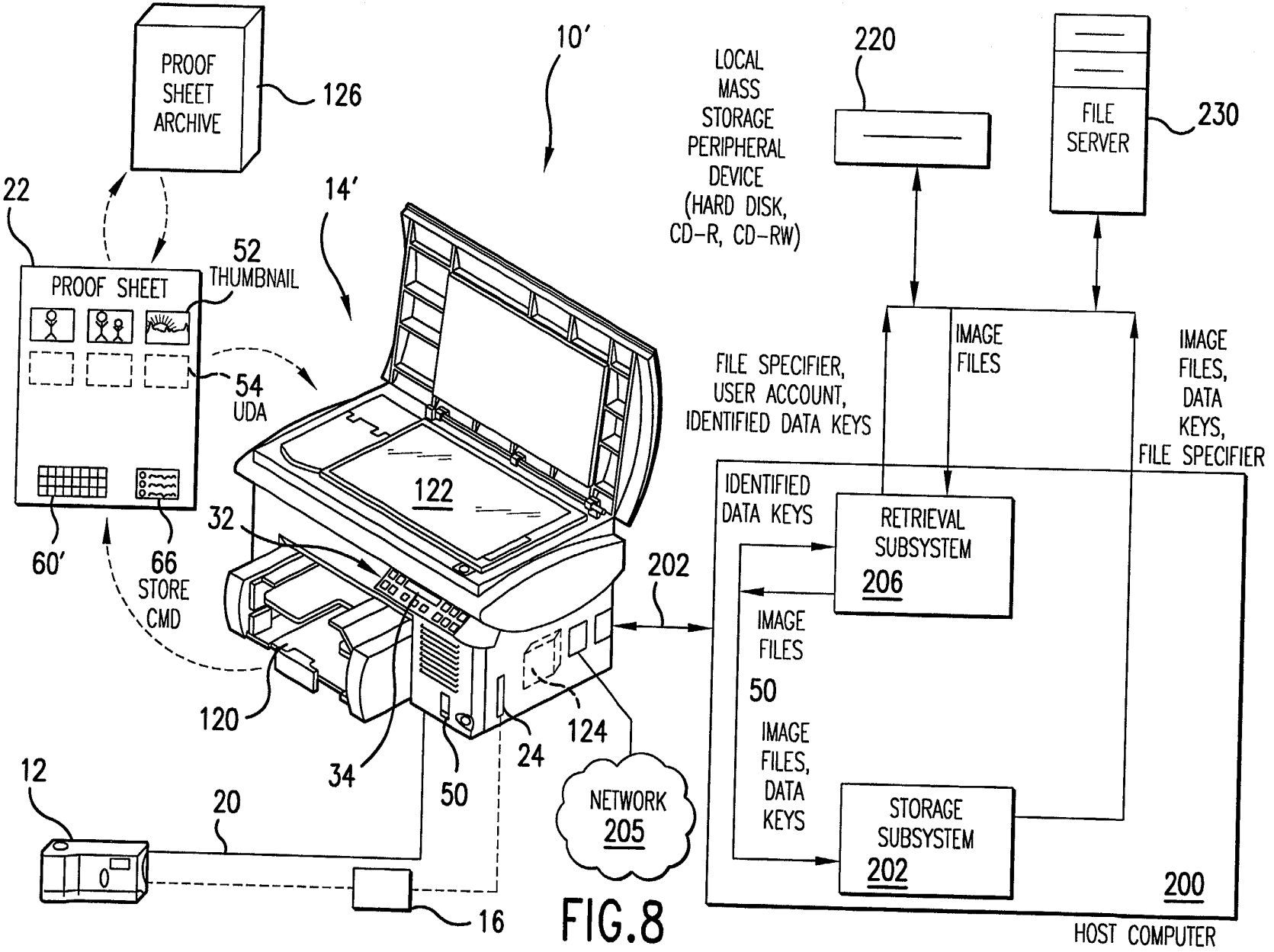

PROOF SHEET ARCHIVE
126
10'
LOCAL MASS STORAGE PERIPHERAL DEVICE (HARD DISK, CD-R, CD-RW)
220
FILE SERVER
230
22
14'
52 THUMBNAIL
PROOF SHEET
54 UDA
FILE SPECIFIER, USER ACCOUNT, IDENTIFIED DATA KEYS
IMAGE FILES
IMAGE FILES, DATA KEYS, FILE SPECIFIER
122
32
IDENTIFIED DATA KEYS
RETRIEVAL SUBSYSTEM 206
202
60'
66 STORE CMD
IMAGE FILES
50
IMAGE FILES, DATA KEYS
120
124
24
34
50
NETWORK 205
STORAGE SUBSYSTEM 202
12
20
200
HOST COMPUTER
16

FIG.8

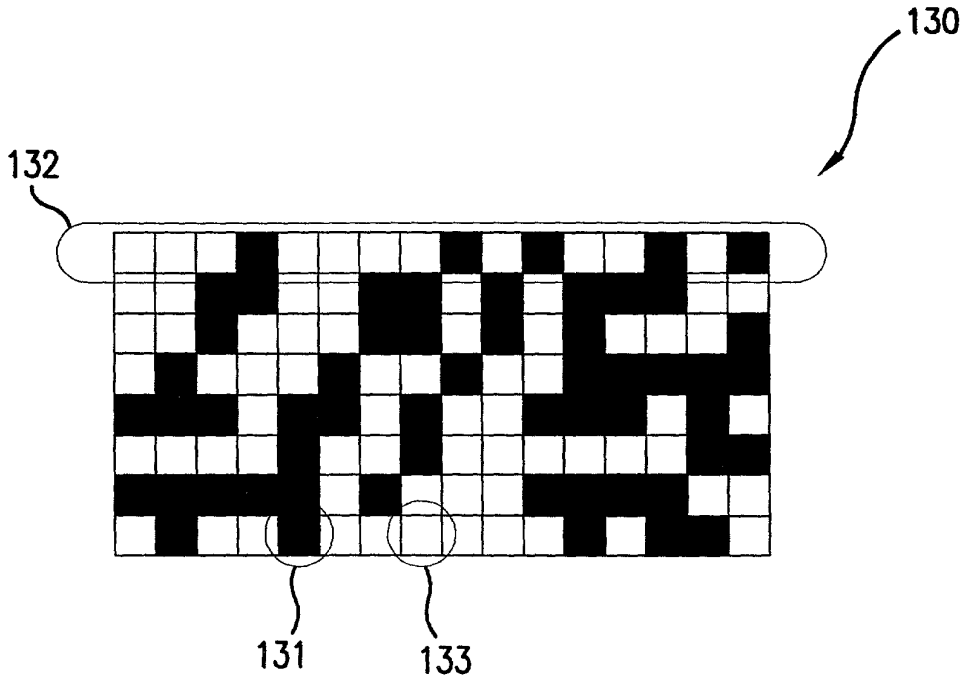


FIG.9A

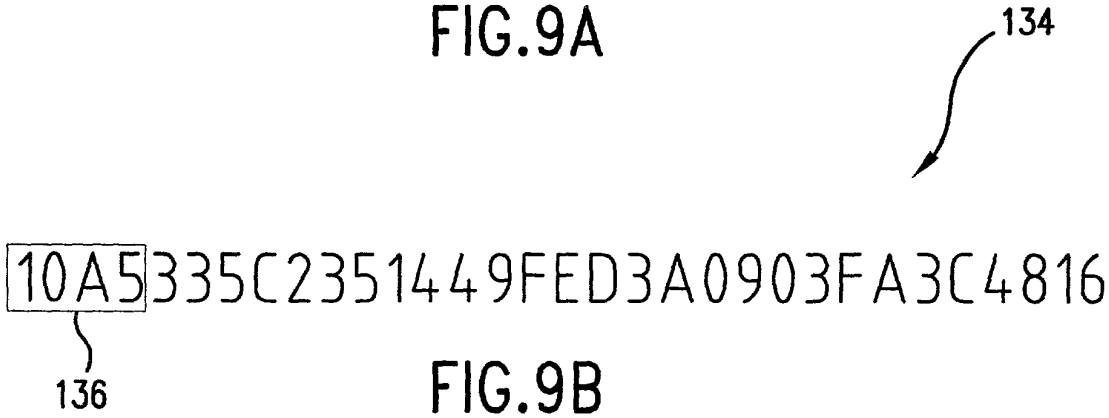


FIG.9B

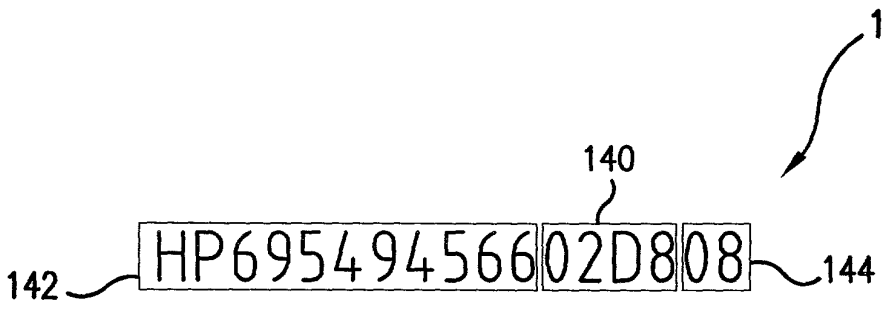


FIG.9C

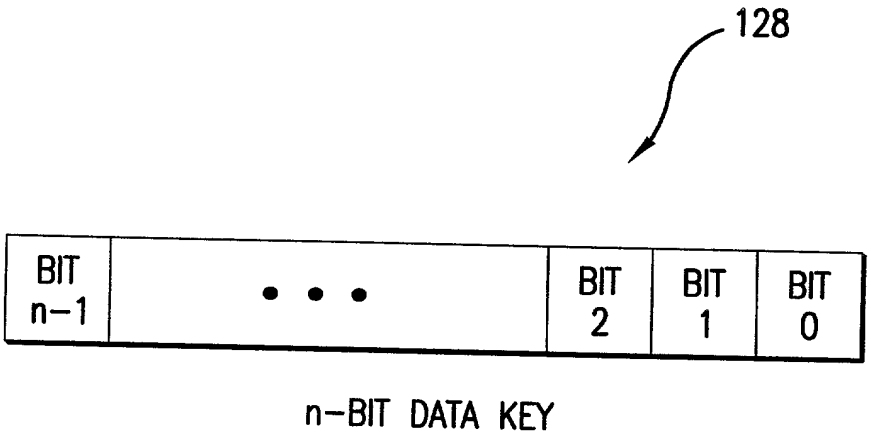


FIG.9D

09/529,249

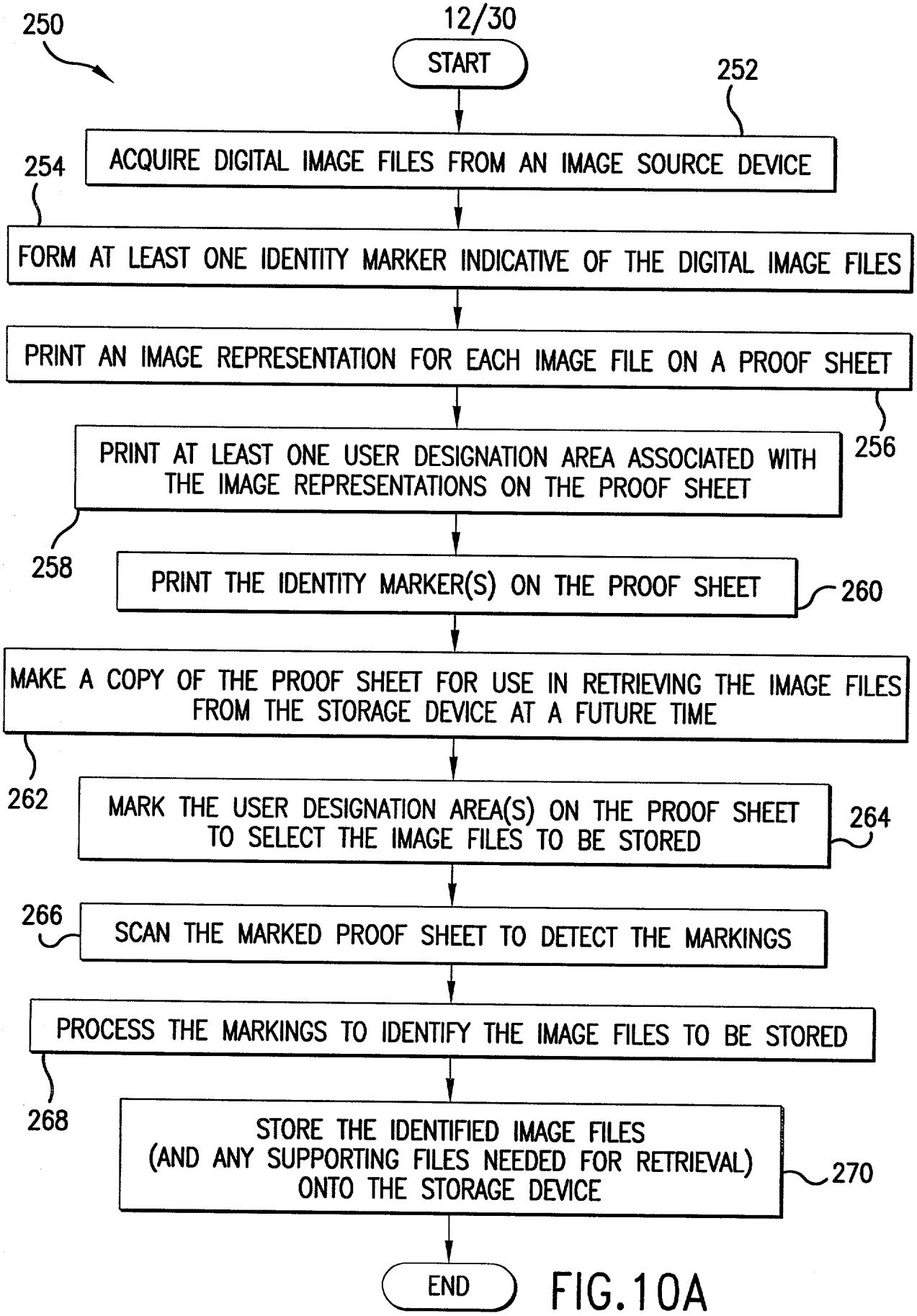


FIG.10A

Docket: 50269-0

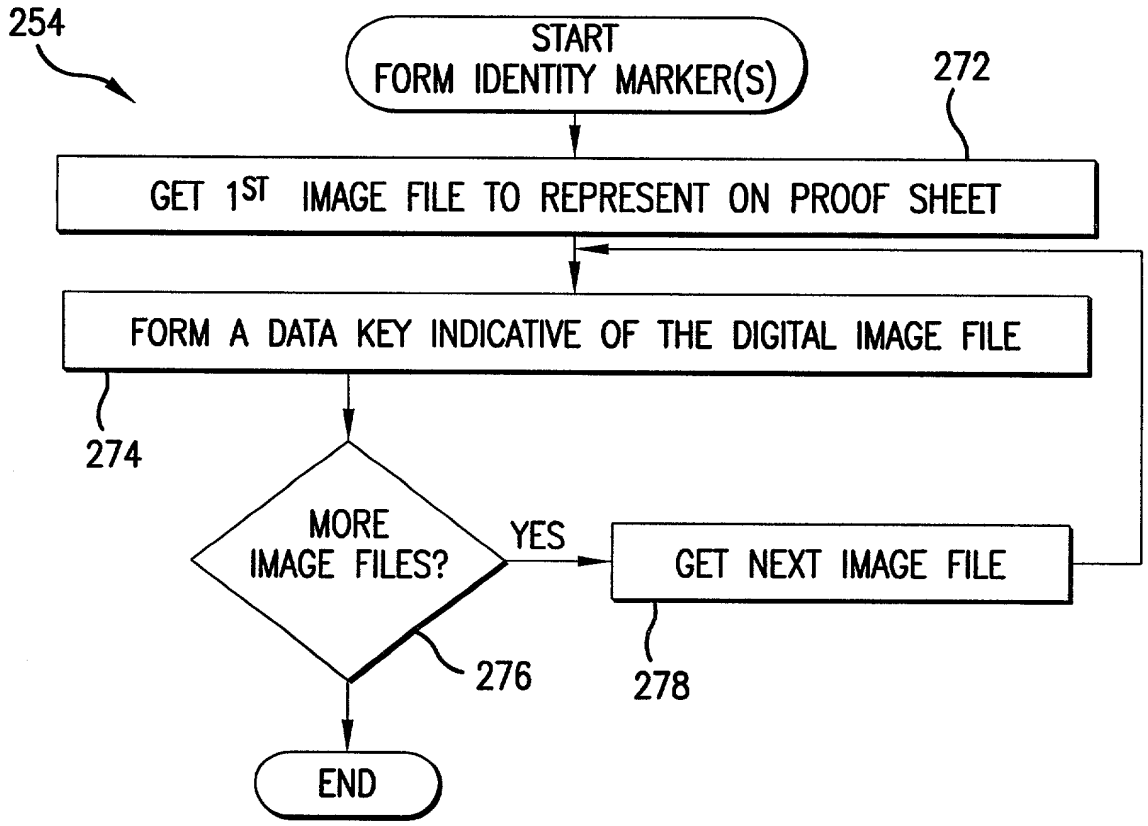

254
START
FORM IDENTITY MARKER(S)
272
GET 1ST IMAGE FILE TO REPRESENT ON PROOF SHEET
FORM A DATA KEY INDICATIVE OF THE DIGITAL IMAGE FILE
274
MORE IMAGE FILES?
YES
GET NEXT IMAGE FILE
276
278
END

FIG.10B

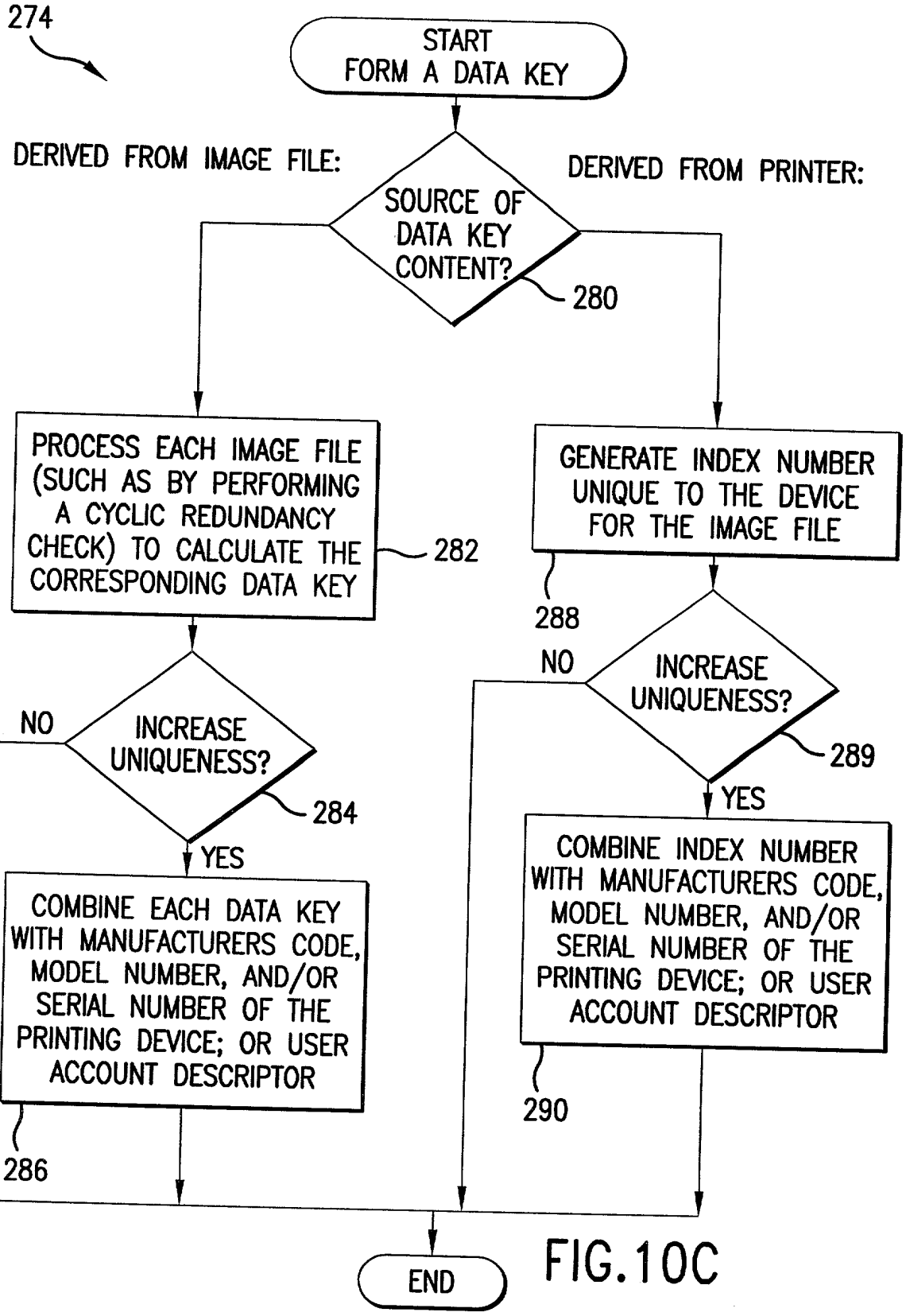

274
START
FORM A DATA KEY
DERIVED FROM IMAGE FILE:
DERIVED FROM PRINTER:
SOURCE OF DATA KEY CONTENT?
280
PROCESS EACH IMAGE FILE (SUCH AS BY PERFORMING A CYCLIC REDUNDANCY CHECK) TO CALCULATE THE CORRESPONDING DATA KEY
282
GENERATE INDEX NUMBER UNIQUE TO THE DEVICE FOR THE IMAGE FILE
288
NO
INCREASE UNIQUENESS?
284
NO
INCREASE UNIQUENESS?
289
YES
COMBINE EACH DATA KEY WITH MANUFACTURERS CODE, MODEL NUMBER, AND/OR SERIAL NUMBER OF THE PRINTING DEVICE; OR USER ACCOUNT DESCRIPTOR
286
YES
COMBINE INDEX NUMBER WITH MANUFACTURERS CODE, MODEL NUMBER, AND/OR SERIAL NUMBER OF THE PRINTING DEVICE; OR USER ACCOUNT DESCRIPTOR
290
END

FIG.10C

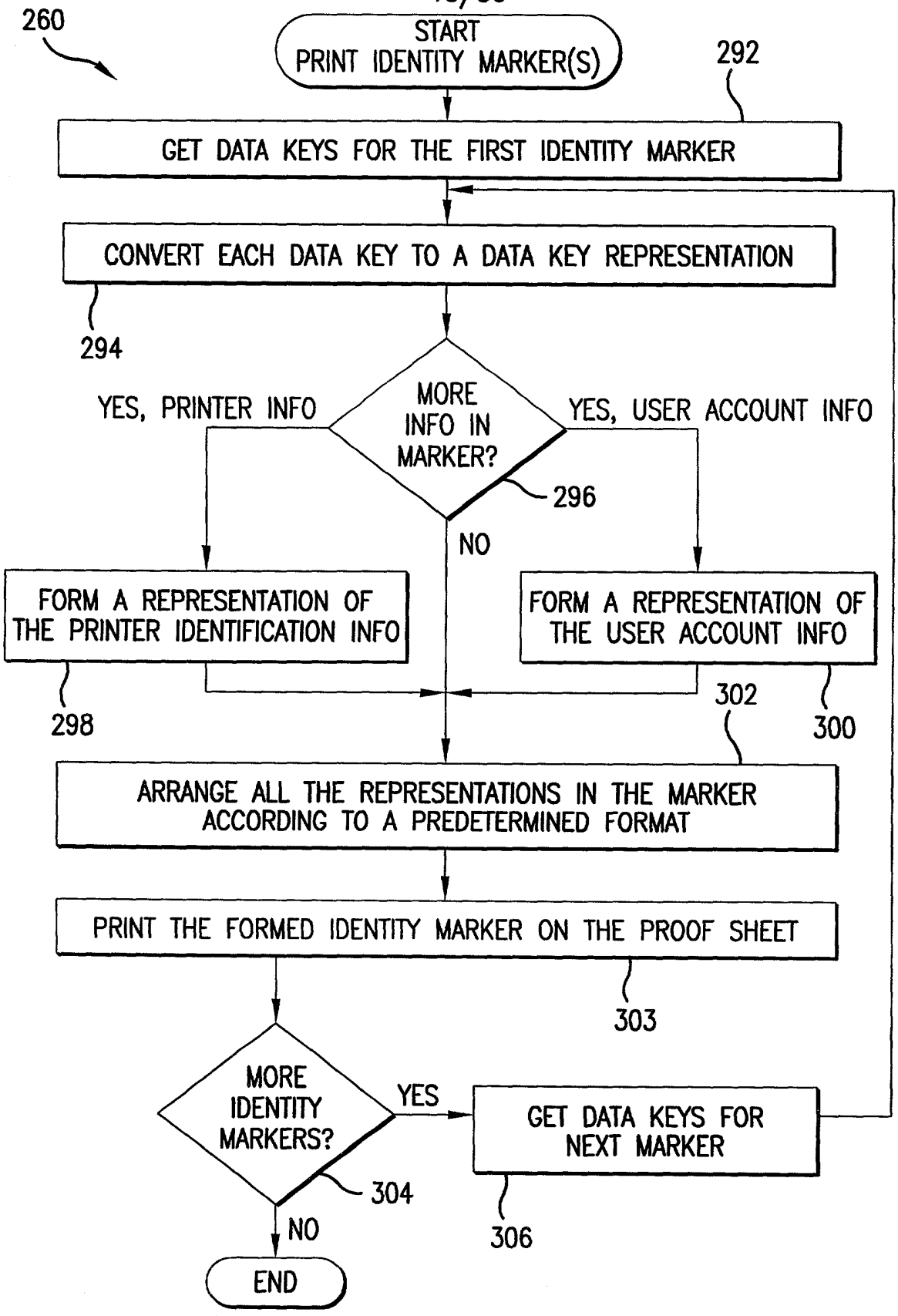

260
START
PRINT IDENTITY MARKER(S)
292
GET DATA KEYS FOR THE FIRST IDENTITY MARKER
CONVERT EACH DATA KEY TO A DATA KEY REPRESENTATION
294
MORE INFO IN MARKER?
296
YES, PRINTER INFO
YES, USER ACCOUNT INFO
NO
FORM A REPRESENTATION OF THE PRINTER IDENTIFICATION INFO
298
FORM A REPRESENTATION OF THE USER ACCOUNT INFO
300
302
ARRANGE ALL THE REPRESENTATIONS IN THE MARKER ACCORDING TO A PREDETERMINED FORMAT
PRINT THE FORMED IDENTITY MARKER ON THE PROOF SHEET
303
MORE IDENTITY MARKERS?
304
YES
GET DATA KEYS FOR NEXT MARKER
306
NO
END

FIG.10D

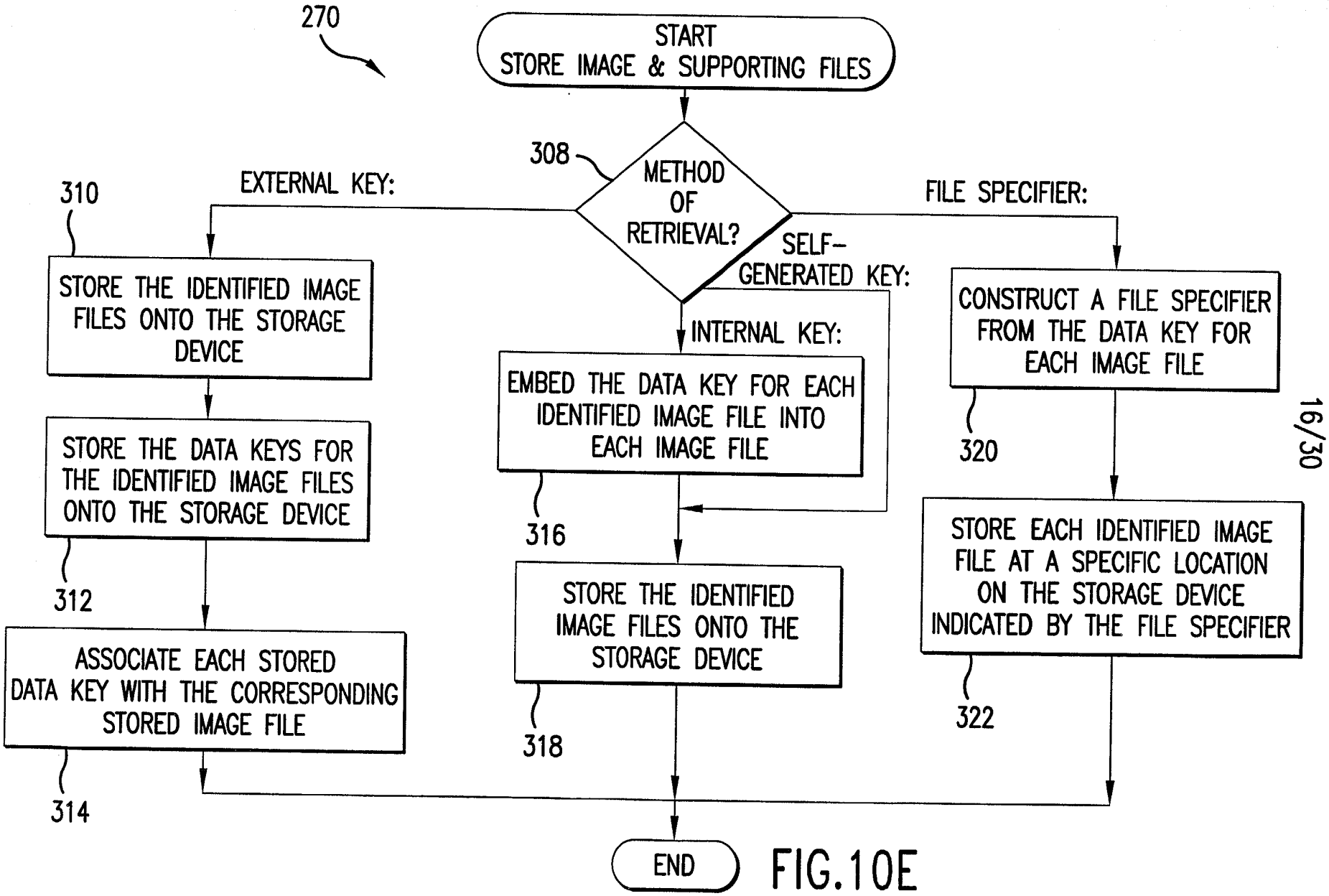

270
START
STORE IMAGE & SUPPORTING FILES
308
METHOD OF RETRIEVAL?
EXTERNAL KEY:
SELF-GENERATED KEY:
FILE SPECIFIER:
310
STORE THE IDENTIFIED IMAGE FILES ONTO THE STORAGE DEVICE
STORE THE DATA KEYS FOR THE IDENTIFIED IMAGE FILES ONTO THE STORAGE DEVICE
312
ASSOCIATE EACH STORED DATA KEY WITH THE CORRESPONDING STORED IMAGE FILE
314
INTERNAL KEY:
EMBED THE DATA KEY FOR EACH IDENTIFIED IMAGE FILE INTO EACH IMAGE FILE
316
STORE THE IDENTIFIED IMAGE FILES ONTO THE STORAGE DEVICE
318
CONSTRUCT A FILE SPECIFIER FROM THE DATA KEY FOR EACH IMAGE FILE
320
STORE EACH IDENTIFIED IMAGE FILE AT A SPECIFIC LOCATION ON THE STORAGE DEVICE INDICATED BY THE FILE SPECIFIER
322
END

FIG.10E

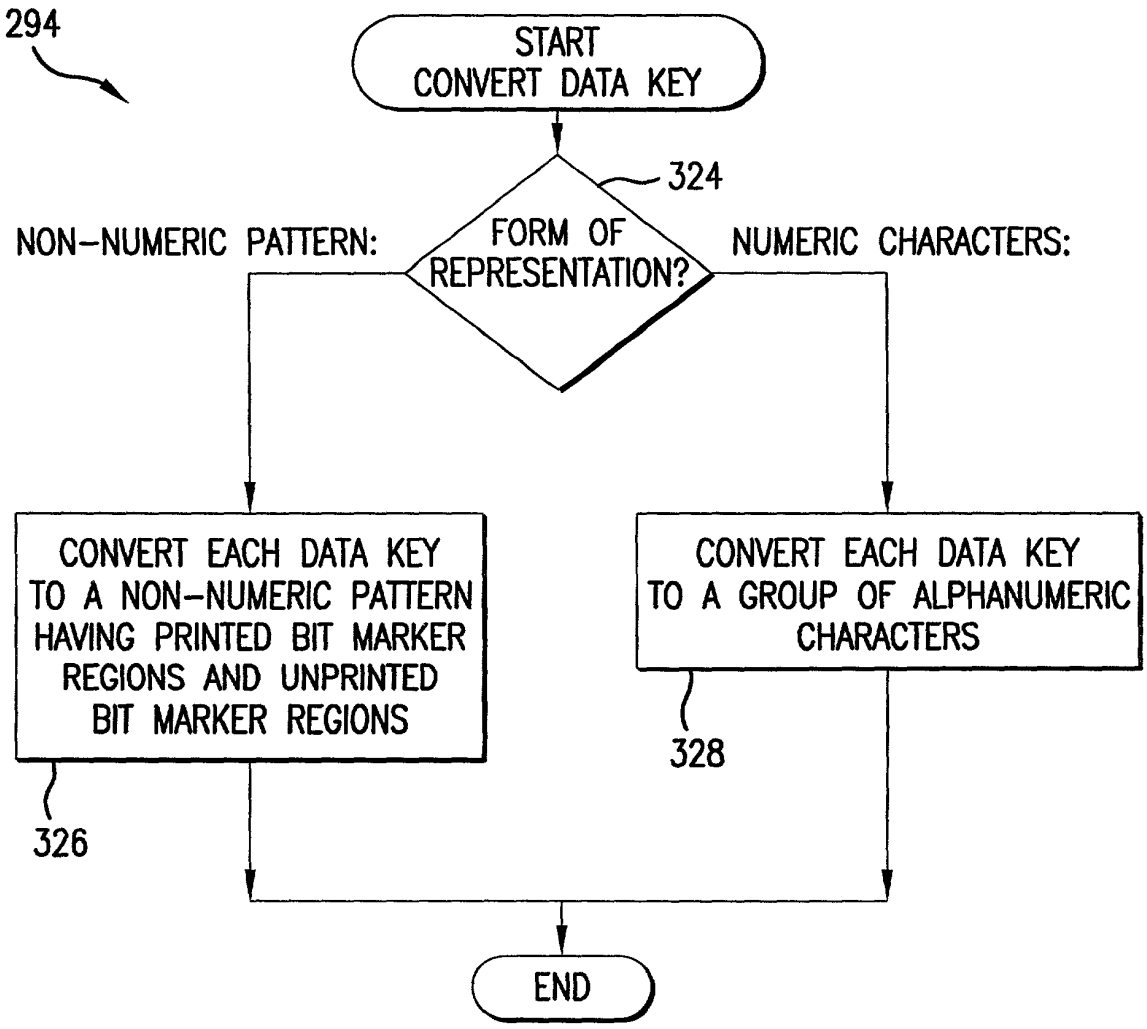

294
START
CONVERT DATA KEY
324
FORM OF REPRESENTATION?
NON-NUMERIC PATTERN:
NUMERIC CHARACTERS:
CONVERT EACH DATA KEY TO A NON-NUMERIC PATTERN HAVING PRINTED BIT MARKER REGIONS AND UNPRINTED BIT MARKER REGIONS
326
CONVERT EACH DATA KEY TO A GROUP OF ALPHANUMERIC CHARACTERS
328
END

FIG.10F

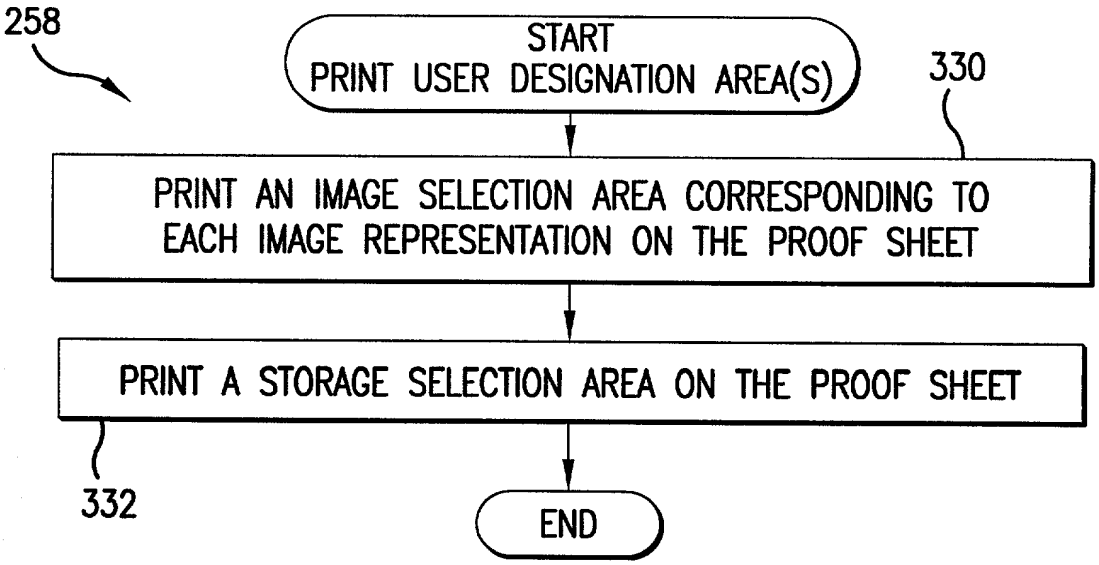


FIG.10G

09/935,501

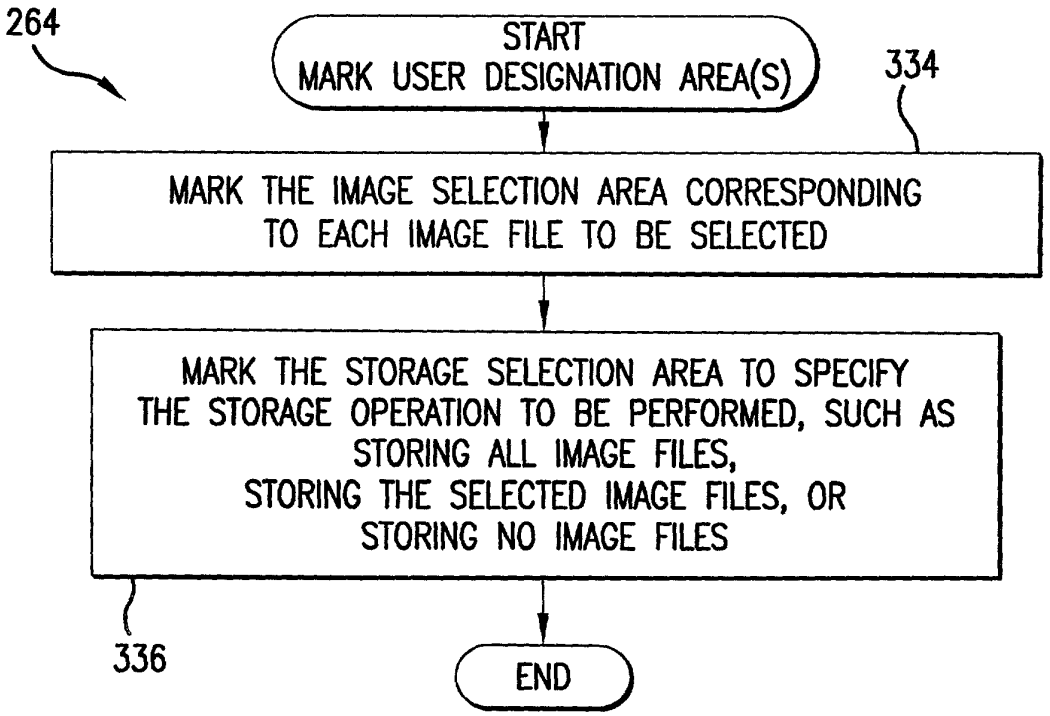

264
START
MARK USER DESIGNATION AREA(S)
334
MARK THE IMAGE SELECTION AREA CORRESPONDING TO EACH IMAGE FILE TO BE SELECTED
MARK THE STORAGE SELECTION AREA TO SPECIFY THE STORAGE OPERATION TO BE PERFORMED, SUCH AS STORING ALL IMAGE FILES, STORING THE SELECTED IMAGE FILES, OR STORING NO IMAGE FILES
336
END

FIG.10H

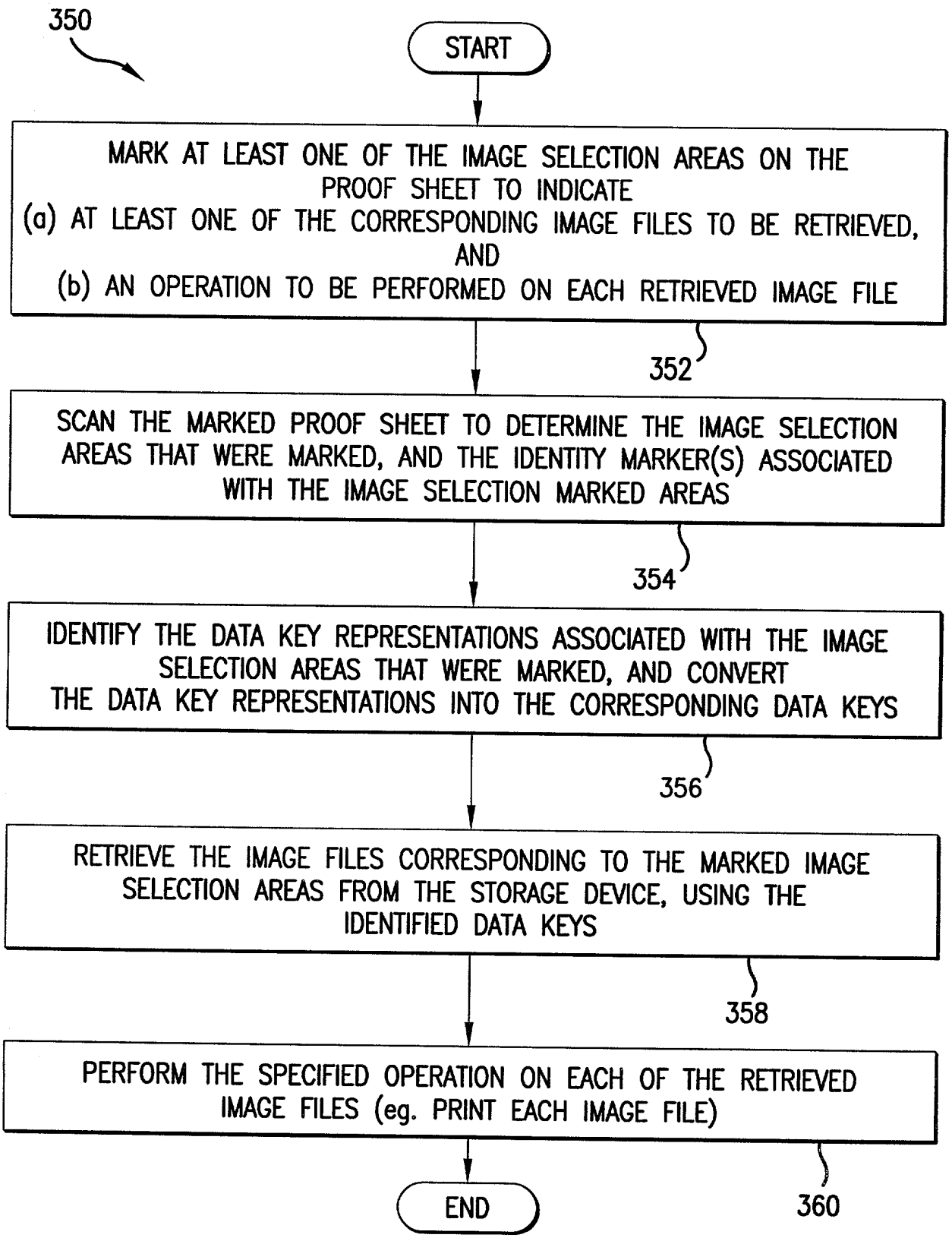


FIG.11A

Docket: 95095

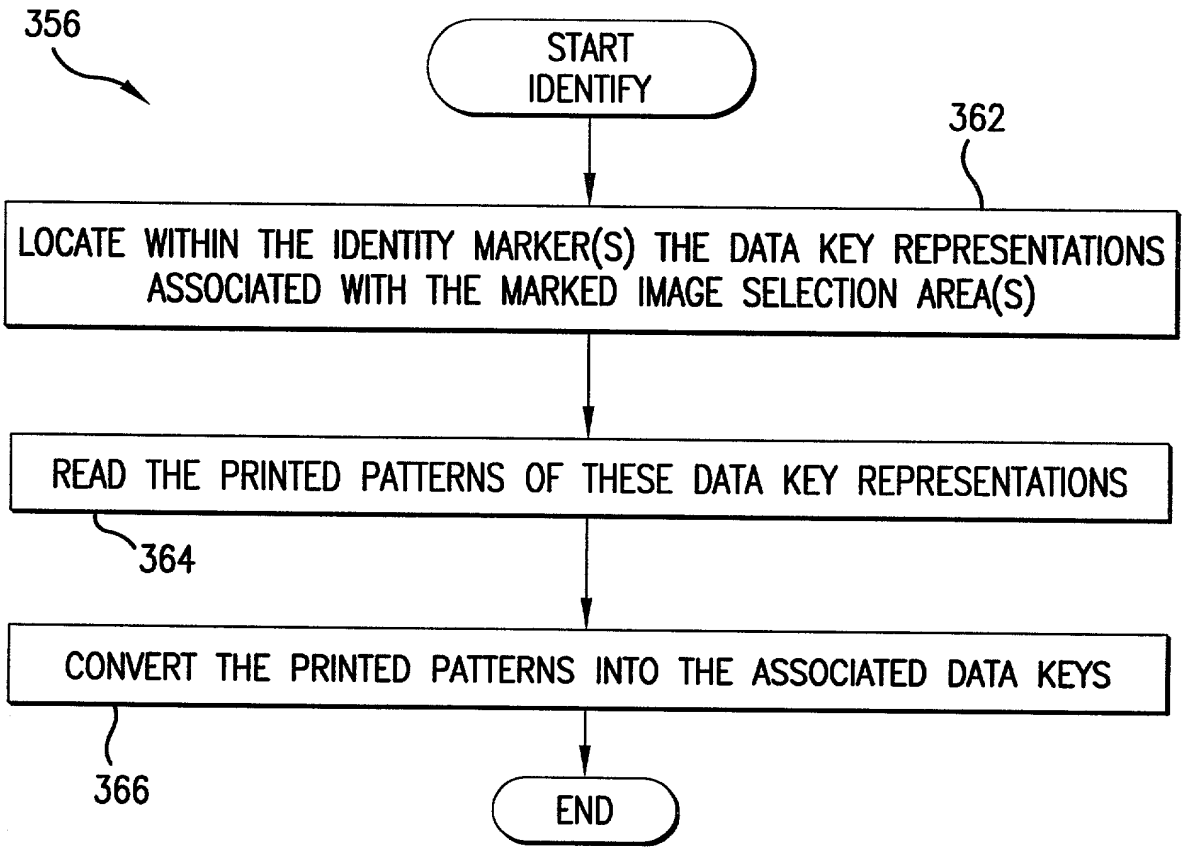

356
START
IDENTIFY
362
LOCATE WITHIN THE IDENTITY MARKER(S) THE DATA KEY REPRESENTATIONS ASSOCIATED WITH THE MARKED IMAGE SELECTION AREA(S)
READ THE PRINTED PATTERNS OF THESE DATA KEY REPRESENTATIONS
364
CONVERT THE PRINTED PATTERNS INTO THE ASSOCIATED DATA KEYS
366
END

FIG.11B

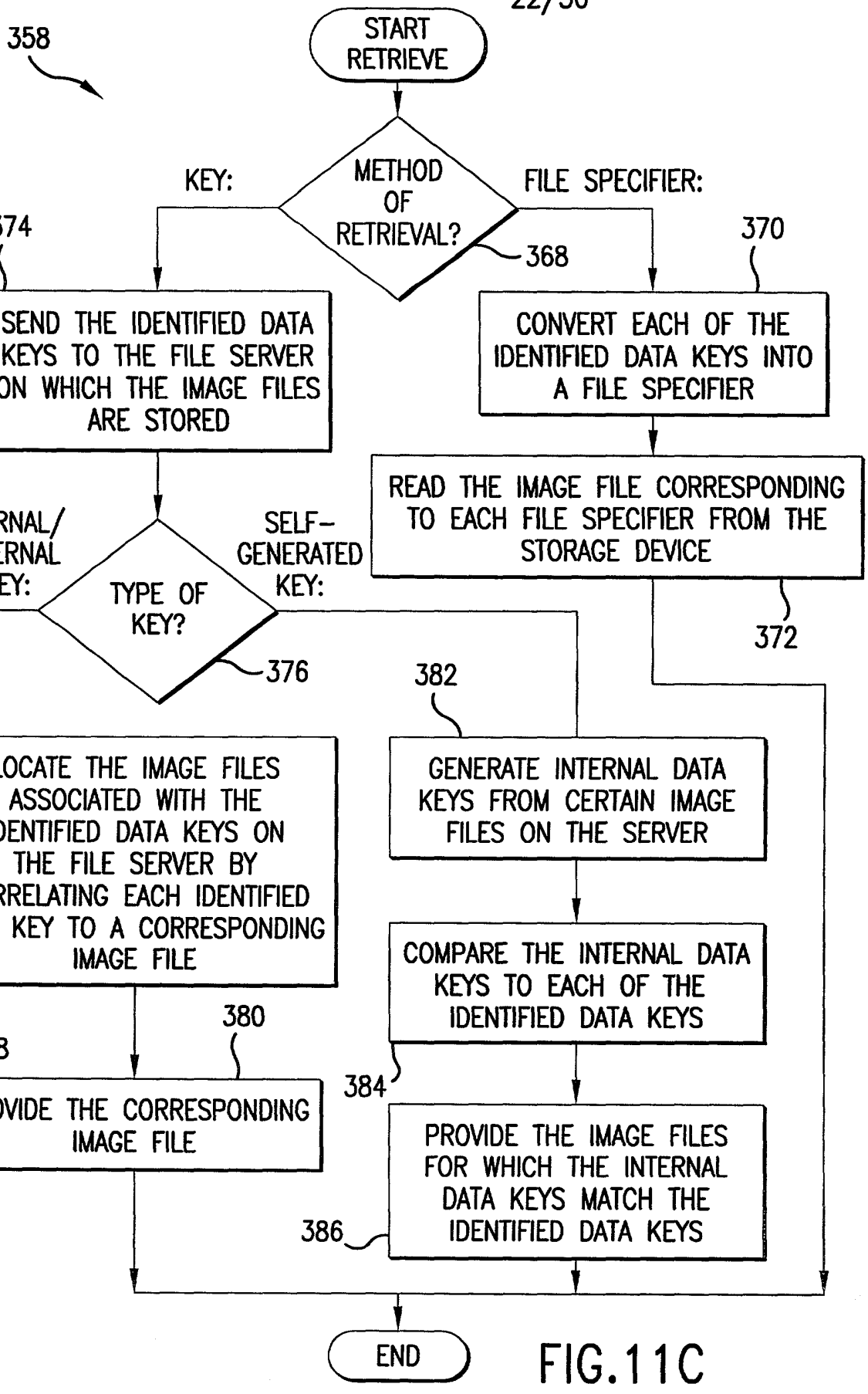

358
START RETRIEVE
METHOD OF RETRIEVAL?
368
KEY:
FILE SPECIFIER:
374
370
SEND THE IDENTIFIED DATA KEYS TO THE FILE SERVER ON WHICH THE IMAGE FILES ARE STORED
CONVERT EACH OF THE IDENTIFIED DATA KEYS INTO A FILE SPECIFIER
READ THE IMAGE FILE CORRESPONDING TO EACH FILE SPECIFIER FROM THE STORAGE DEVICE
372
INTERNAL/ EXTERNAL KEY:
SELF-GENERATED KEY:
TYPE OF KEY?
376
382
LOCATE THE IMAGE FILES ASSOCIATED WITH THE IDENTIFIED DATA KEYS ON THE FILE SERVER BY CORRELATING EACH IDENTIFIED DATA KEY TO A CORRESPONDING IMAGE FILE
GENERATE INTERNAL DATA KEYS FROM CERTAIN IMAGE FILES ON THE SERVER
COMPARE THE INTERNAL DATA KEYS TO EACH OF THE IDENTIFIED DATA KEYS
378
380
384
PROVIDE THE CORRESPONDING IMAGE FILE
PROVIDE THE IMAGE FILES FOR WHICH THE INTERNAL DATA KEYS MATCH THE IDENTIFIED DATA KEYS
386
END

FIG.11C

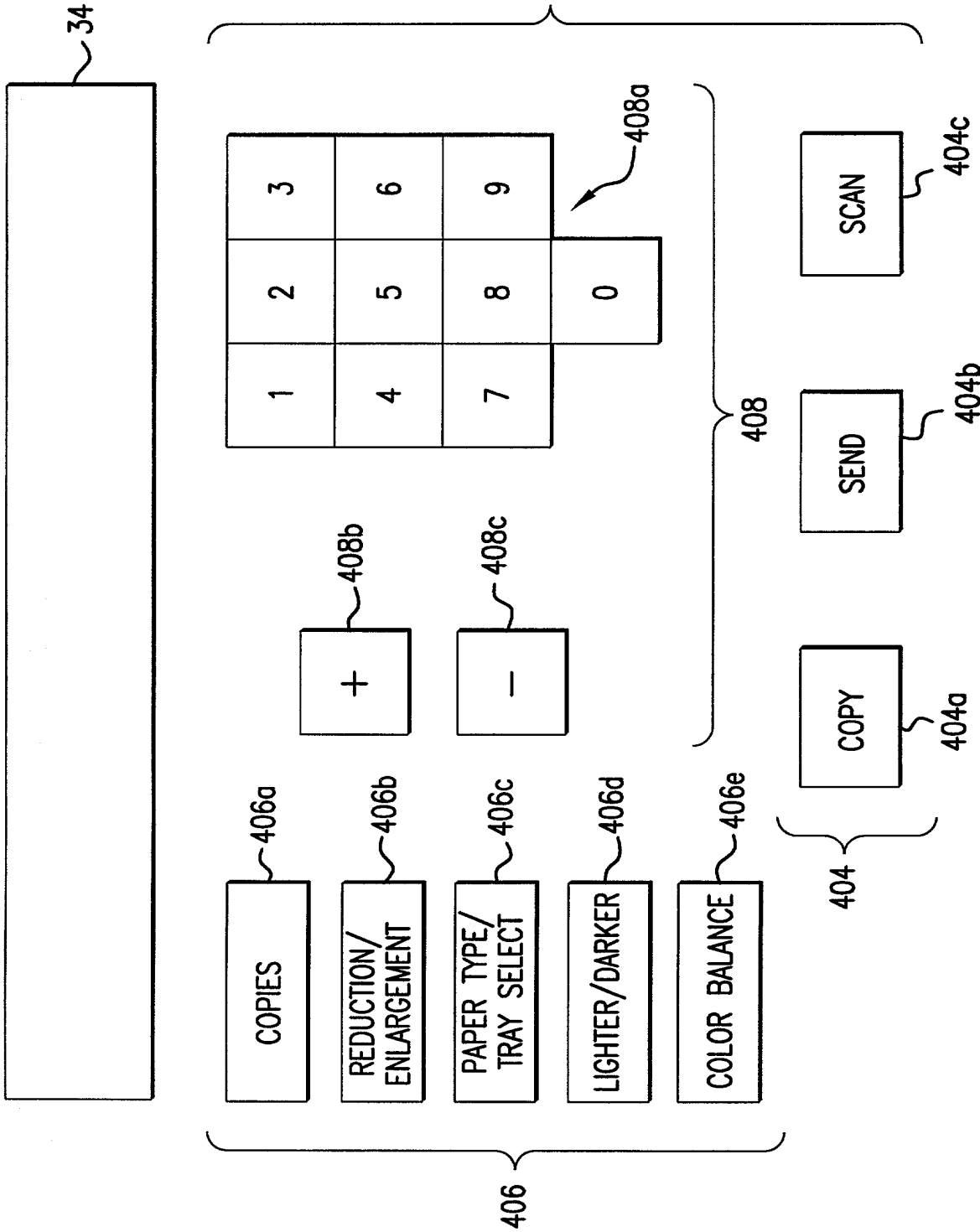
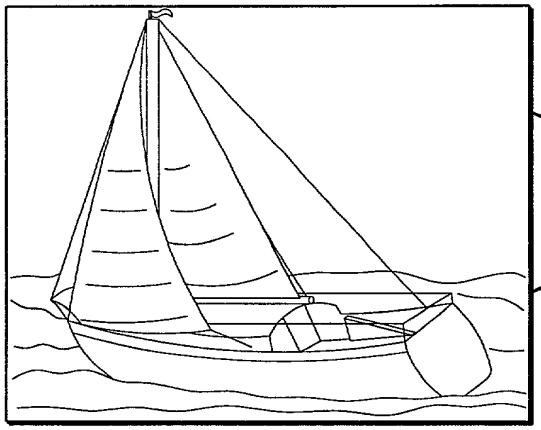

34
32
408a
1
2
3
4
5
6
7
8
9
0
408b
+
408c
−
408
SCAN
404c
SEND
404b
COPY
404a
404
406a
COPIES
406b
REDUCTION/ ENLARGEMENT
406c
PAPER TYPE/ TRAY SELECT
406d
LIGHTER/DARKER
406e
COLOR BALANCE
406

FIG.12



I

52

SIZE	QTY
3.5x5 4x6 5x7 8x10 CSTM	○○○○○ ○○○○○ ○○○○○ ○○○○○ ●
BRIGHTNESS	○ LIGHT ○ ○ MEDIUM ○ ○ DARK
COLOR	BLUE ○○○ RED ○○○ GREEN
PAPER	○ PLAIN ○ PREMIUM ○ PHOTO ○ DELUXE PHOTO
OPERATION	○ PRINT ○ SEND ○ STORE

IMAGE PROCESSING PARAMETERS 400

OPERATION 402

54'

FIG.13

Docket: 95-0950

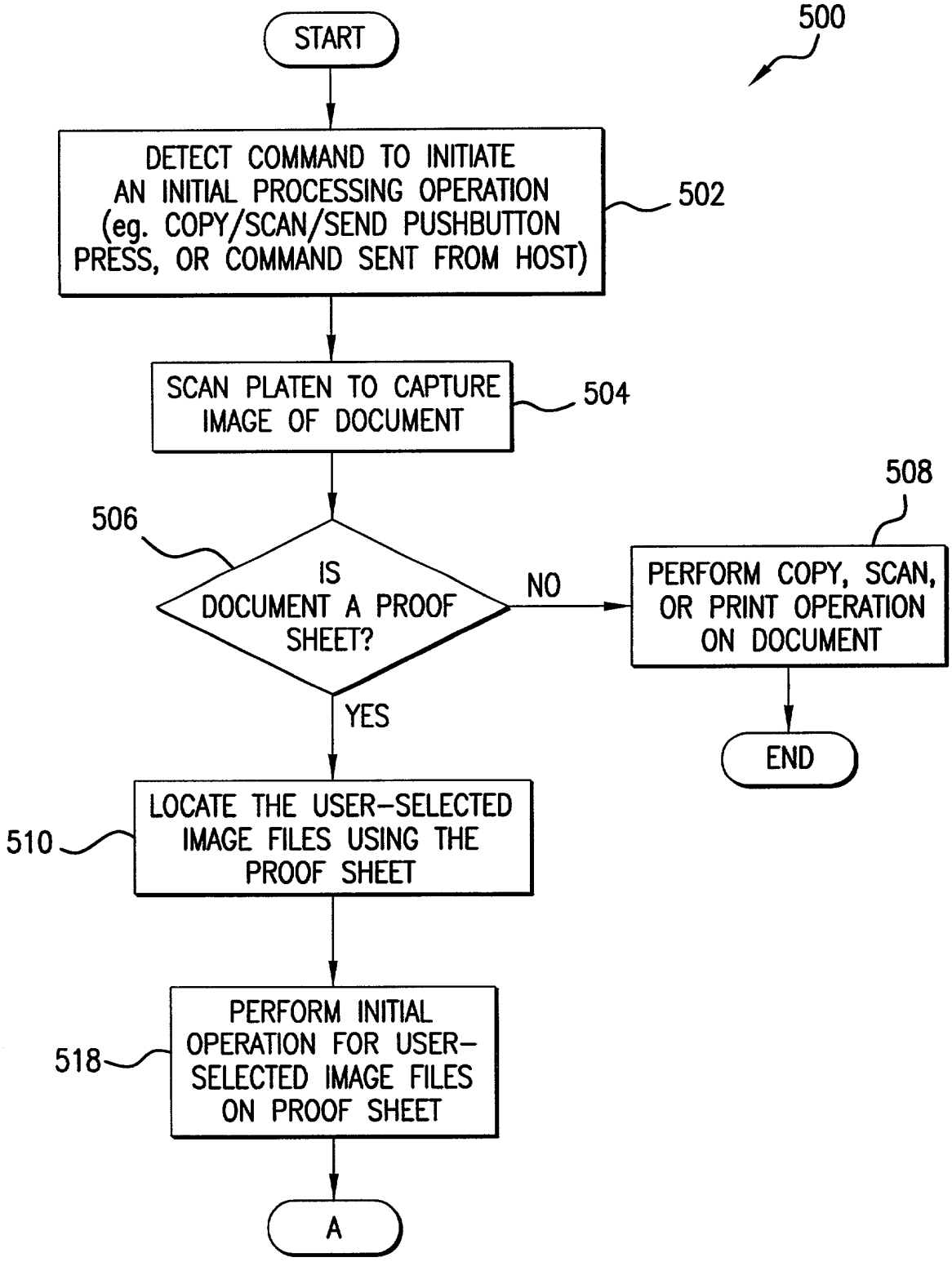

500
START
DETECT COMMAND TO INITIATE AN INITIAL PROCESSING OPERATION (eg. COPY/SCAN/SEND PUSHBUTTON PRESS, OR COMMAND SENT FROM HOST)
502
SCAN PLATEN TO CAPTURE IMAGE OF DOCUMENT
504
506
IS DOCUMENT A PROOF SHEET?
NO
508
PERFORM COPY, SCAN, OR PRINT OPERATION ON DOCUMENT
END
YES
510
LOCATE THE USER-SELECTED IMAGE FILES USING THE PROOF SHEET
518
PERFORM INITIAL OPERATION FOR USER-SELECTED IMAGE FILES ON PROOF SHEET
A

FIG.14A

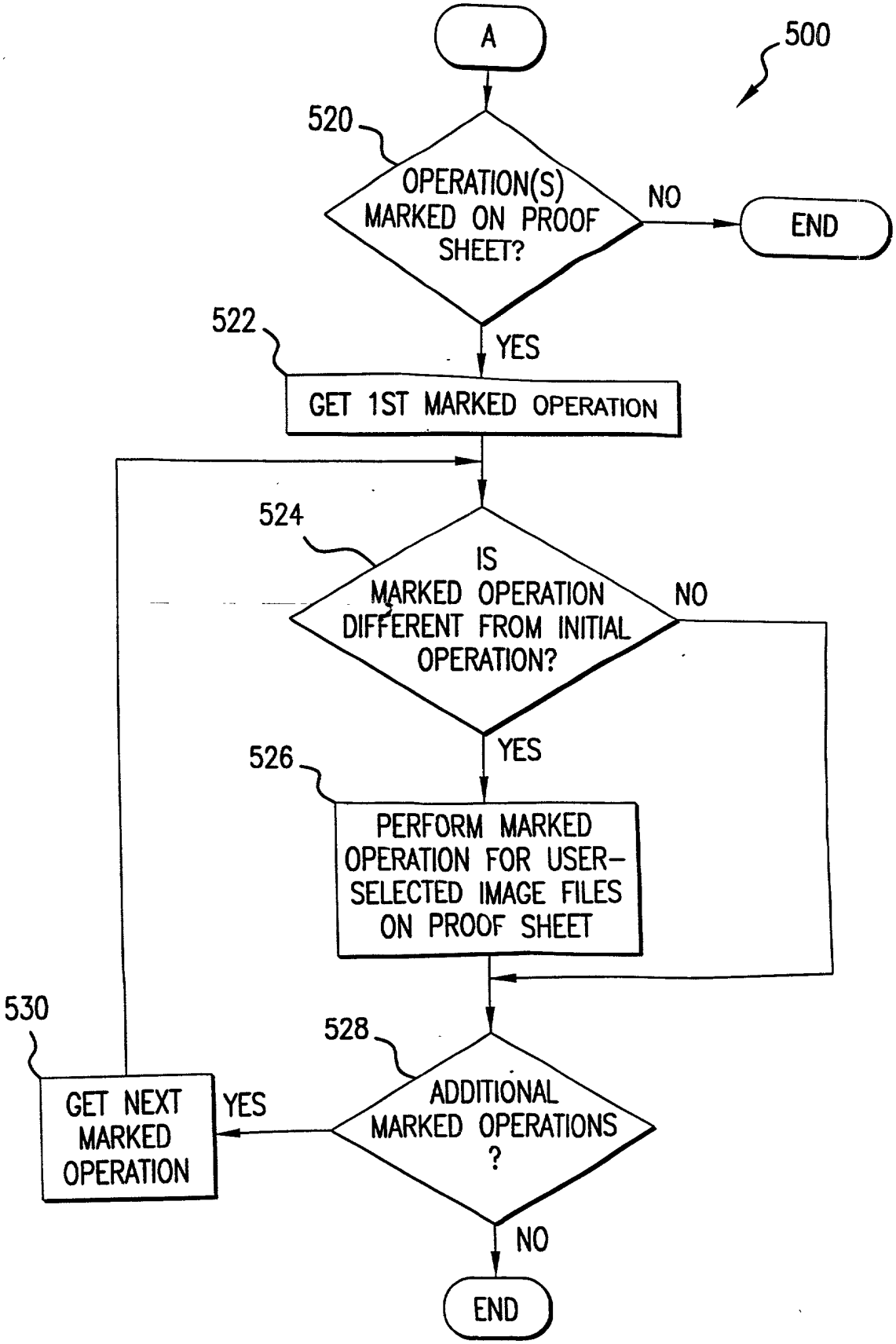

A
500
520
OPERATION(S) MARKED ON PROOF SHEET?
NO
END
YES
522
GET 1ST MARKED OPERATION
524
IS MARKED OPERATION DIFFERENT FROM INITIAL OPERATION?
NO
YES
526
PERFORM MARKED OPERATION FOR USER-SELECTED IMAGE FILES ON PROOF SHEET
528
ADDITIONAL MARKED OPERATIONS ?
YES
530
GET NEXT MARKED OPERATION
NO
END

FIG.14B

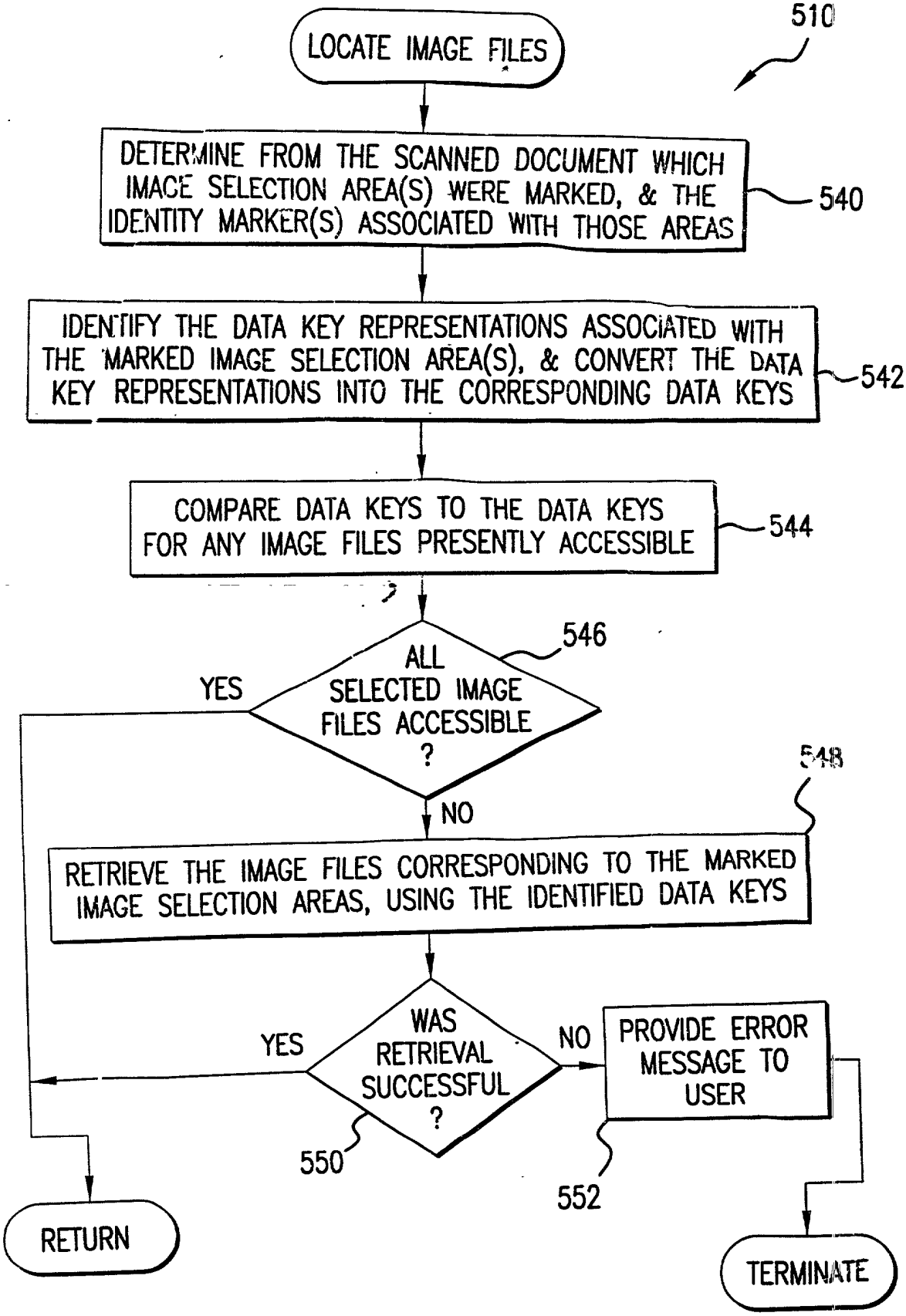

510
LOCATE IMAGE FILES
DETERMINE FROM THE SCANNED DOCUMENT WHICH IMAGE SELECTION AREA(S) WERE MARKED, & THE IDENTITY MARKER(S) ASSOCIATED WITH THOSE AREAS
540
IDENTIFY THE DATA KEY REPRESENTATIONS ASSOCIATED WITH THE MARKED IMAGE SELECTION AREA(S), & CONVERT THE DATA KEY REPRESENTATIONS INTO THE CORRESPONDING DATA KEYS
542
COMPARE DATA KEYS TO THE DATA KEYS FOR ANY IMAGE FILES PRESENTLY ACCESSIBLE
544
546
ALL SELECTED IMAGE FILES ACCESSIBLE ?
YES
NO
548
RETRIEVE THE IMAGE FILES CORRESPONDING TO THE MARKED IMAGE SELECTION AREAS, USING THE IDENTIFIED DATA KEYS
WAS RETRIEVAL SUCCESSFUL ?
YES
NO
550
PROVIDE ERROR MESSAGE TO USER
552
RETURN
TERMINATE

FIG.15

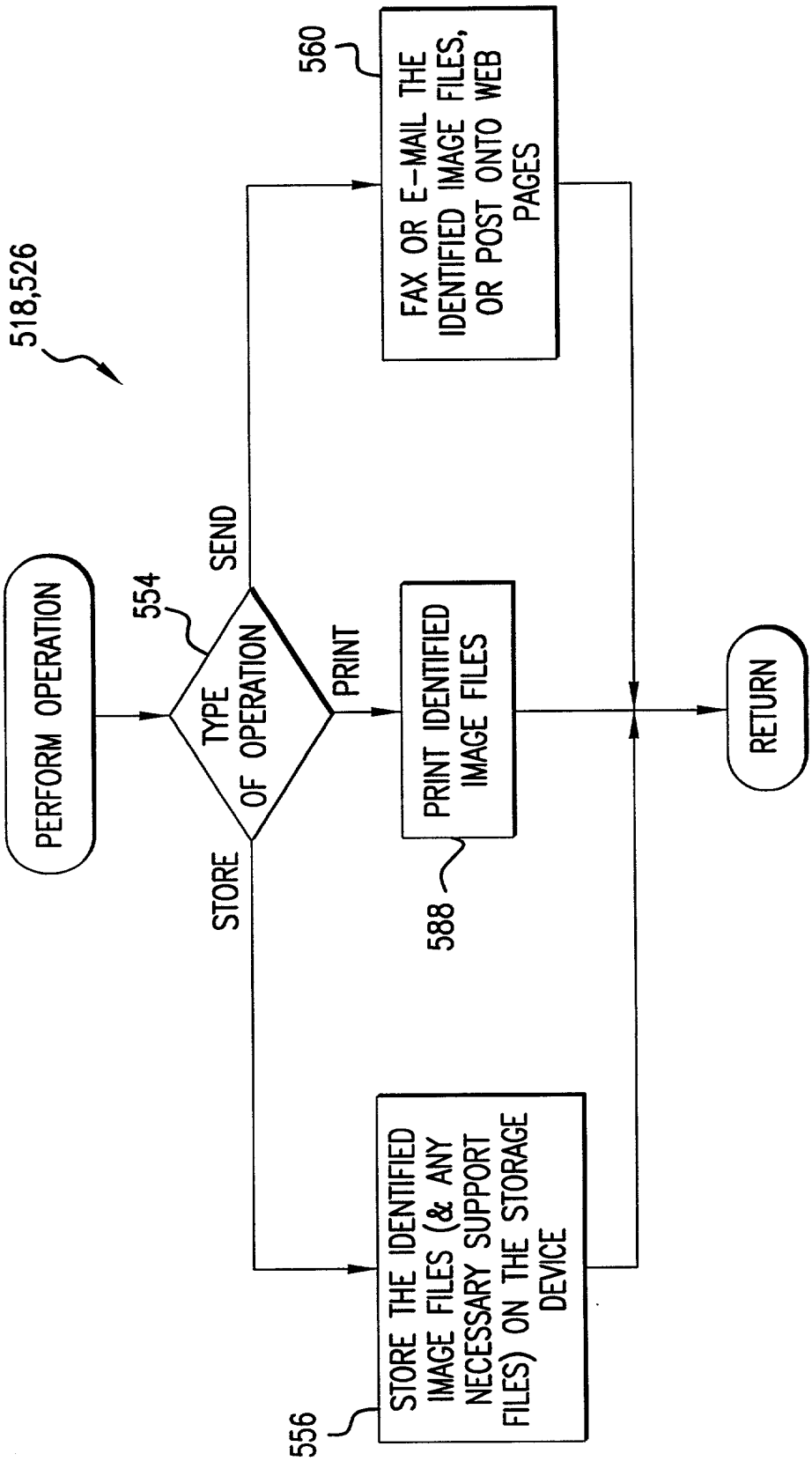

518,526
PERFORM OPERATION
554
TYPE OF OPERATION
SEND
PRINT
STORE
560
FAX OR E-MAIL THE IDENTIFIED IMAGE FILES, OR POST ONTO WEB PAGES
588
PRINT IDENTIFIED IMAGE FILES
556
STORE THE IDENTIFIED IMAGE FILES (& ANY NECESSARY SUPPORT FILES) ON THE STORAGE DEVICE
RETURN

FIG.16

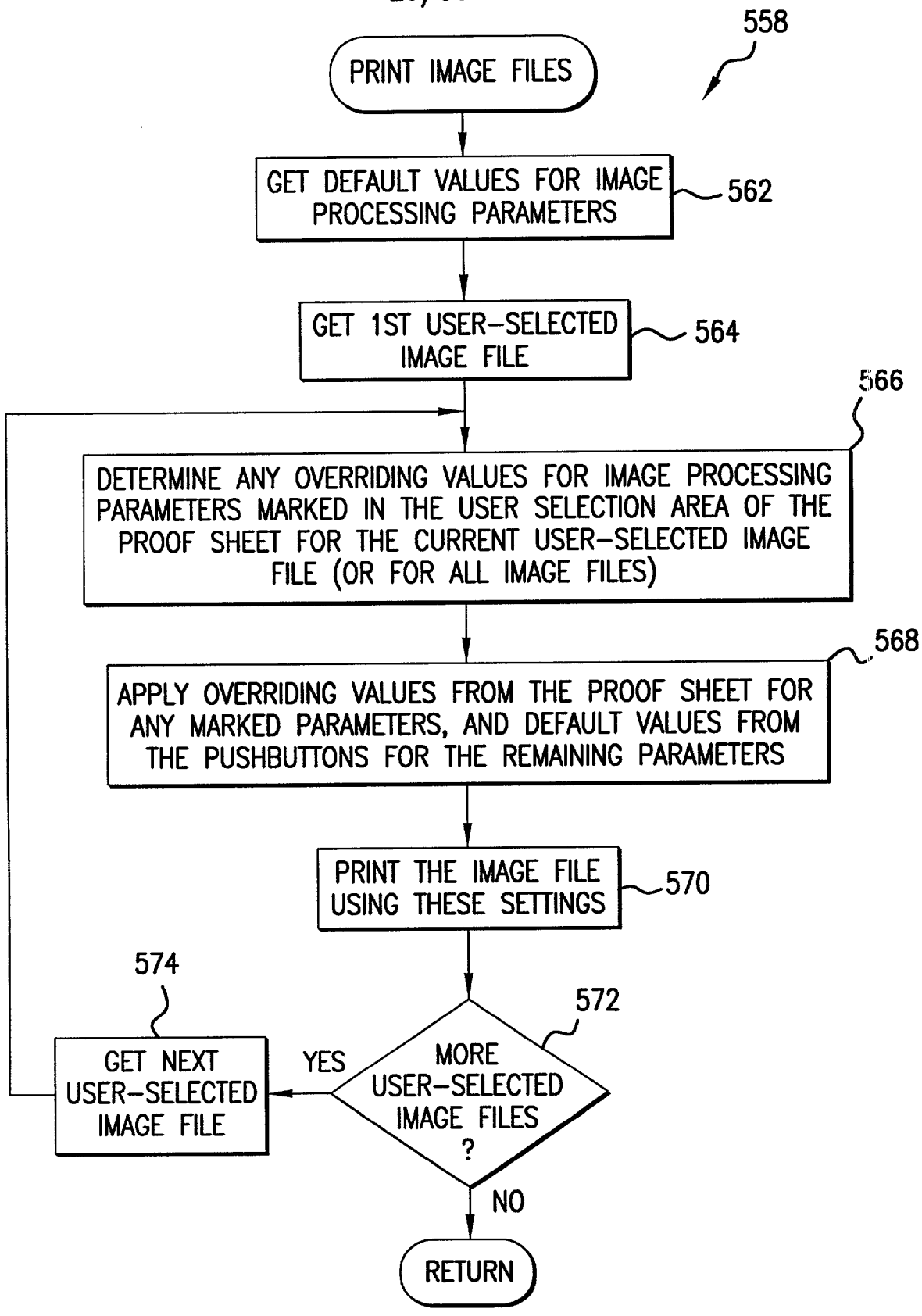

558
PRINT IMAGE FILES
GET DEFAULT VALUES FOR IMAGE PROCESSING PARAMETERS
562
GET 1ST USER-SELECTED IMAGE FILE
564
566
DETERMINE ANY OVERRIDING VALUES FOR IMAGE PROCESSING PARAMETERS MARKED IN THE USER SELECTION AREA OF THE PROOF SHEET FOR THE CURRENT USER-SELECTED IMAGE FILE (OR FOR ALL IMAGE FILES)
568
APPLY OVERRIDING VALUES FROM THE PROOF SHEET FOR ANY MARKED PARAMETERS, AND DEFAULT VALUES FROM THE PUSHBUTTONS FOR THE REMAINING PARAMETERS
PRINT THE IMAGE FILE USING THESE SETTINGS
570
572
MORE USER-SELECTED IMAGE FILES ?
YES
574
GET NEXT USER-SELECTED IMAGE FILE
NO
RETURN

FIG.17

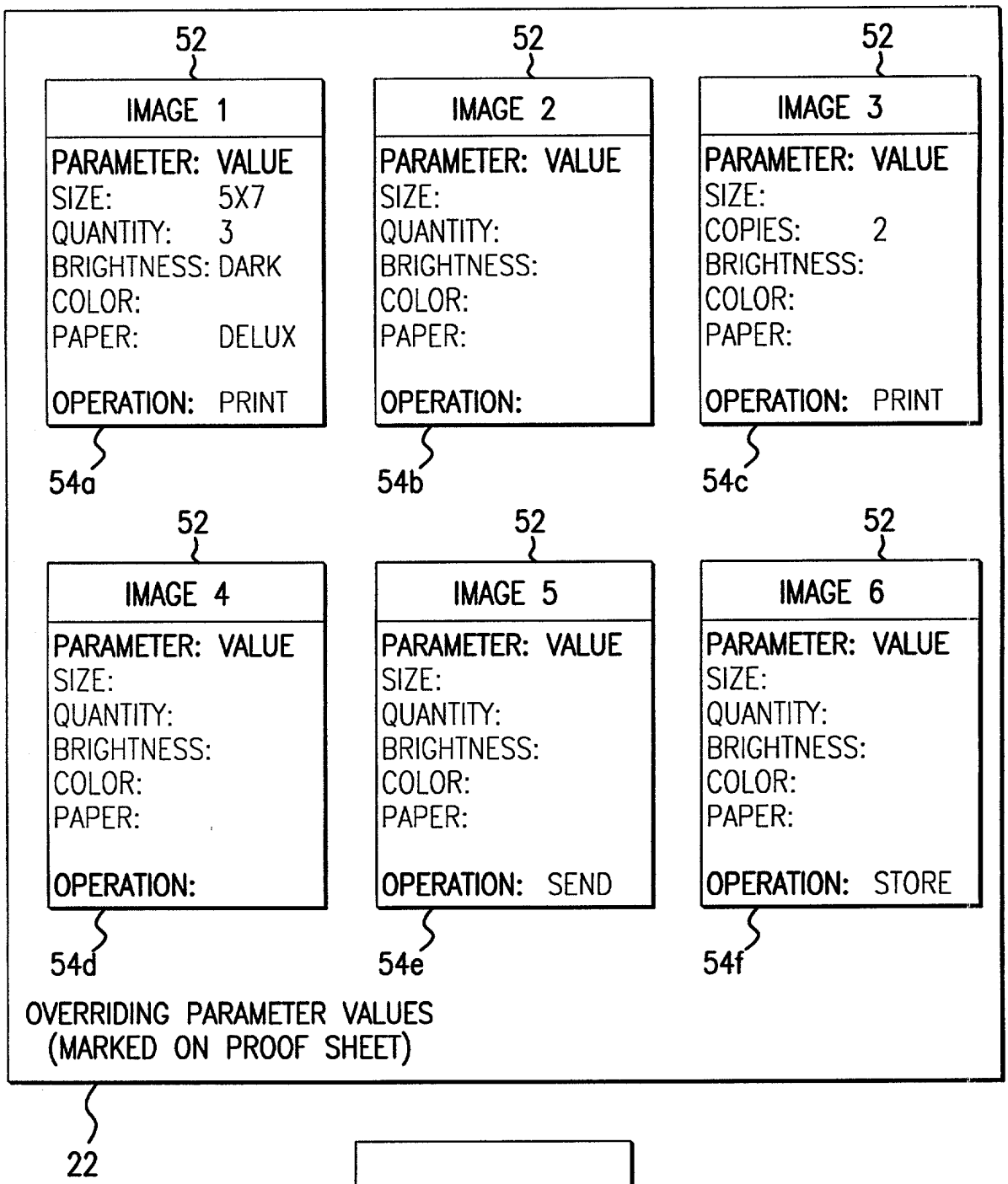

52
IMAGE 1
PARAMETER: VALUE
SIZE: 5X7
QUANTITY: 3
BRIGHTNESS: DARK
COLOR:
PAPER: DELUX
OPERATION: PRINT
54a
52
IMAGE 2
PARAMETER: VALUE
SIZE:
QUANTITY:
BRIGHTNESS:
COLOR:
PAPER:
OPERATION:
54b
52
IMAGE 3
PARAMETER: VALUE
SIZE:
COPIES: 2
BRIGHTNESS:
COLOR:
PAPER:
OPERATION: PRINT
54c
52
IMAGE 4
PARAMETER: VALUE
SIZE:
QUANTITY:
BRIGHTNESS:
COLOR:
PAPER:
OPERATION:
54d
52
IMAGE 5
PARAMETER: VALUE
SIZE:
QUANTITY:
BRIGHTNESS:
COLOR:
PAPER:
OPERATION: SEND
54e
52
IMAGE 6
PARAMETER: VALUE
SIZE:
QUANTITY:
BRIGHTNESS:
COLOR:
PAPER:
OPERATION: STORE
54f
OVERRIDING PARAMETER VALUES
(MARKED ON PROOF SHEET)
22
580
PARAMETER: VALUE
SIZE: 3.5X5
QUANTITY: 1
BRIGHTNESS: MED
COLOR: NORMAL
PAPER: PHOTO
DEFAULT PARAMETER VALUES (ENTERED AT COMMAND INTERFACE)

FIG.18